MEDICAL REPOSITORY,

FOR

AUGUST, SEPTEMBER, AND OCTOBER, 1807.

An Examination of Dr. HUGH WILLIAMSON'S MEMOIR *on* FASCINATION; *to which is subjoined a new Theory of that Phenomenon: In a Communication from* MALACHI FOOT, *A. M. and Member of the College of Physicians and Surgeons in the City of New-York, to the Editors of the Medical Repository, dated New-York, July 7,* 1807.

THERE has existed a strange propensity to associate with the snake ideas of an extravagant and superstitious nature. This creature seems o have acquired a claim to unusual notice for his wisdom, and to have obtained the character of possessing powers and properties the most extraordinary and contradictory. "The cunning of the serpent" is proverbial. The seduction of Eve, and the consequent entailment of human misery, could not be accomplished by means less than the assumption of his form; and at other times he has been a subject of great homage. The Egyptians have heretofore held him in such veneration as to render it a crime to kill him. In the district of Whidah, in Africa, the snake is held as a tutelar deity to this day. The Esculapian serpent in Greece was so great a favourite as to be suffered to creep into their beds; and the Boyno, in Ceylon, is greatly admired for his beauty, and his presence is said to presage some good. The Romans are said to have worshipped Esculapius under the form of a huge serpent, which they kept in a temple dedicated to that purpose, near the mouths of the Tyber. And he has been the emblem of wisdom and immortality from the earliest ages. While the origin of extravagances like these is to be sought in ignorance, under a strange propensity for the marvellous, it would be more surprising that, in the present state of the physical sciences, there should be found any one who, while he has any pretensions to a knowledge even of the rudiments of philosophy, should advance the opinion that this reptile possesses any properties detached

from the physical laws of matter, and which are not (cæteris paribus) common to all animal nature.

It is now generally admitted that certain snakes, and some other animals, practise an art by which they attract the attention in an extraordinary manner, and are thereby enabled to enthral their prey; and I suspect there prevails, as yet, a vulgar opinion, that this faculty of *charming*, as it is termed, is accomplished by a species of supernatural agency.

The unqualified denial, by professor Barton and some others, of any faculty of this kind, is an instance of the disposition in some to discredit all popular opinions, the solution of which is not current with their general reasonings. Facts might be applied on this head without limit, and supported by authority not to be questioned.

If necessary, among others, we can refer to Bartram, Kalm and Barrow, the latter of whom informs us that this fact is so well known in the southern parts of Africa, that he found very few of the peasantry who hesitated to vouch for its truth, from personal observation. But for a more recent and not less respectable authority in our own country, we refer to the memoir of Dr. Hugh Williamson on this subject, in the last volume of this work.

This gentleman certainly deserves great credit for his ingenuity; but, for the reason that one chooses not to give his assent to that which his judgment contradicts, I must be permitted to say, that, in my mind, this paper goes for little more than its facts. Beyond the merit of having bestowed on this subject a very considerable share of attention, and that under circumstances favourable to an investigation of this kind, I claim nothing.

Permit me to examine cursorily the theory of Dr. Williamson, and after that subjoin what I have always believed a true explanation of this phenomenon. In deciding a preliminary question of some importance, I am pleased to find that the Doctor and myself think alike in discarding the idea of supernatural agency in the snake, and I heartily agree with him that "all the phenomena of his catching birds and beasts can be explained by powers which he certainly does possess in common with other animals;" but I cannot agree that the Doctor is equally happy in the details of his opinion, and think that he who rests contented with the merit of expunging an erroneous theory, has rendered science a greater benefit than he who attempts to fill the chasm with one equally or more objectionable.

In selecting an appellation for this process, he says, "if I might be permitted to coin a word, I would call it *dementation.*" In reasonings of all kinds we cannot too cautiously guard against "the magic of words." By "*dementation*" and "*dementing effect*," I should presume that nothing farther could be meant than *madness, a mad or delirious state* (see Entick). "*Demento (a demens), to make or become mad*," (vide Cole's Latin Dictionary). Mania is a delirium without fever, (vide Quincy improved). In this disease the subject is sensible of every thing external, but has the voluntary powers of his mind intensely exerted on some particular object of his desire or aversion *not present.* He harbours suspicion, and keeps his intentions and motives a profound secret. The violent exertion is on *mistaken* objects, and is not relieved by acquiring or escaping them. The volition is a diseased action, and *wholly disconnected with sensation and external objects.* This voluntary power of the mind is possessed in a very imperfect degree by other animals than man, (vide Zoonomia). Crichton, a recent nosologist, affords nothing which can justify the belief, that Dr. Williamson could have made this author his text book. See also Pinel's *Nosographie Philosophique*, and Cullen's *Synopsis Nosologiæ.* I might, equally in vain, pursue the subject, and detail the complicated definitions and distinctions of Sauvages, Sagar, Linnæus, Vogel, and others. But all farther inquiry of this kind is rendered unnecessary, by the Doctor's using a word which I take as an intended synonyme—this is "*fear.*" Nor am I disposed to accuse the gentleman of a literary licence, in confounding words so greatly, if not entirely, different in their established import. I shall therefore adopt this latter word, and hope thereby to escape all danger of the imputation of taking the Doctor "from off his own ground."

An attempt to refer the process in question to "extreme fear," would have occurred to me as the last mode by which to explain the phenomenon. I have always considered the passion of fear the antagonist of love, and coupled it with the word aversion.—Taking mankind as the principal subject of my reasonings, and thereby pursuing the analogy adopted by Dr. Williamson himself, it is wholly impossible, either by reflecting on the operations of my own mind, or noticing the actions of others, to reconcile passions and emotions with actions apparently opposite and

contradictory; neither do our observations of the general character of other animals afford more satisfaction.

The action is represented as an involuntary one. A great writer on physiology tells us that "volition bears the same analogy to desire and aversion that sensation has to pleasure and pain." The tendency of all animal motions is to arrest and possess the pleasure, or to remove and avoid the pain which excites them. To will is to act in consequence of desire. To say that an action can take place without a motive, is a nullity. That a motive should excite to an action directly contrary to the motive, is incomprehensible. In the case in question the Doctor makes the motive to action in the animal charmed (for the word is not inapt), "*extreme fear*," and to avoid that which causes it, rushes forward to its embrace. The story of the hungry ass, who starved between two hay stacks, being actuated by opposing and equal desires, is certainly more reconcileable to what we know of mental physiology. "Extreme fear stupifies the mind, and deprives him of the understanding." Granted; and what follows? The motive no longer perceived, and ceasing to act, is followed by quiescence; and no one will hesitate to credit the Doctor when he says, "I have seen a quadruped fall apparently lifeless by the effect of extreme fear." Again; "we know the manner in which deer are killed, in the night, being terrified by the light of a torch." Again; "the hare, in many cases, falls apparently lifeless before it is touched by the dogs." This is equally also the effect of a forcible and sudden operation of other emotions. The cases in which the sudden reception of unexpected good news has proved fatal, are too numerous to require to be specified.

But the analogy on which the author places the most stress, and to which he seems to commit the support of his theory, is the following. "Every man who is versed in history, has noticed cases, not a few, in which individuals, or whole regiments, being panic struck, have destroyed themselves. Men who could not swim have thrown themselves into a deep river. They incurred certain death to escape the chance of being killed." The facts will not be denied; but it certainly requires something more than merely to be "versed in history," to apply them to the case in question. If the Doctor will permit an inversion in the order of the phrase, "they incurred certain death to escape the chance of being killed," possibly it may be made to approximate

to the truth. If indulged in this liberty, I would say, that in most cases of this kind "they incurred the chance of a doubtful event in preference to certain death." The Swedish soldiers, who, at the famous battle of Pultowa, between Charles of Sweden and Peter the Great, precipitated themselves into the river Boristhenes, preferred the very uncertain chance of escape to falling into the hands of an enemy, from whom they had nothing to hope. The case of the two officers of the regiment of the brave Col. Troutefette, who on the same occasion killed each other, though more in point, is one, however, in which the analogy is very incomplete. Instead of rushing on the bayonets of their enemy, which is essential to the similitude, they chose another death, and very probably from the very obvious motive, to save the pain of indulging a cruel and vindictive foe.

Dr. Williamson observes, that "an animal which is exceedingly terrified may be observed to lose the power of turning its eyes from the object of its fear." I very much doubt whether this is generally, or even frequently the fact. The lamb when pursued by the wolf, is observed to hide its head. The quail, the partridge, and turkey, when greatly terrified, do the same. Children, when angrily frowned upon, are often known to close their eyes, drop the head, or cover the face with their hands. In the cases in which the eye is observed to become fixed, through fear, it is a mere dictate of self-preservation, and is exerted only to avail himself of the attitude and intentions of his foe; and in that case, can certainly afford very little toward explaining his passively approximating the object of his dread.

I cannot pass from these remarks without noticing one more sentiment of Dr. Williamson.—"It (fear) deprives the brute creation of the correct use of instinct." Again; "there is a wonderful analogy between instinct and reason or experience." And pray, why not an *identity?* It is with me more than "*wonderful,*" that a gentleman, who has no inconsiderable claim to the reputation of a philosopher, should, in the present state of science, advocate a doctrine which, I had thought, had peaceably "slept in that same ancient vault to which many a story of hobgoblins and necromancers had long since been consigned." On this subject I must refer Dr. Williamson to his favourite adage—"*Nec Deus intersit nisi dignus vindice nodus inciderit.*" The crow, which, mistaking the bald head of Anaxagoras for a stone, dropped thereon a muscle, and thereby killed the phi-

losopher, certainly was on an *honourable mission* (instinct), however curious or novel the mode of execution.

The better to illustrate the phenomena attending the process of fascination, I trust I shall be excused in premising the following.

The rejection of the doctrine of innate and abstract ideas, now so generally admitted, goes at once to ascribe a superior influence to the senses, and to render their agency an object of primary and principal notice. All our ideas are originally ideas of sensation, or received through the medium of the senses. In this respect there exists no difference between men and brutes. But a faculty of after acquirement, and springing probably from the necessity arising out of man's superior wants, creates a vast distinction. The ideas of children and brutes are, for the most part, excited by their present pleasures and pains. They are seldom employed about the *means* of procuring future pleasure or avoiding future pain. Voluntary exertions of this kind bespeak that superior perfection appertaining only to man. But, it is obvious that, while this faculty of reasoning diminishes the force and acuteness of the senses, it also tends to exempt its possessor from the deceptions and hallucinations of those organs, which, in other animals, hold an influence, dooming them to a blind and often fatal obedience. The long and constant habit of exercising the faculty of reasoning to the partial exclusion of ideas of sensation, renders it extremely difficult to conceive of the extent of the force and influence of impressions made on the senses of other animals; and the more exquisite and controlling ones of our infancy are mostly beyond the reach of recollection.

In all animals, the eye is that commanding organ through which we receive a large portion of our ideas, and the consequent emotions of pleasure and pain. The large size of the optic nerve, added to other extraordinary supplies of nervous power, explains the conspicuous and commanding rank of this organ.

It is now ascertained that sensation consists in the movements and configurations of the fibres of the terminating nerves of sense. A train of these actions once excited, like a convulsive state of the muscular system, is liable to proceed to a morbid extent.

In the act of charming, the reptile first places himself on the limb of a tree, or in some other situation conspicuous to his prey. He elevates his head, and throws his tail into

a perpendicular attitude. He projects his large, expressive and luminous eye to an unusual size. And while, with the utmost vigilance, he fixes the latter on those of his intended prey, he throws his tail into a gentle undulating motion. If he is so happy as to arrest and fix the attention of his object, this at once exhibits the most lively emotions. He traverses, for the most part, at right angles with the head of his alluring and seductive enemy. Exhibiting a struggle between fear and the most exquisite delight, he forbears to rush directly upon the object of his pleasure. The pleasurable movements of the organs of vision stimulate to approach, and excite an eager desire to embrace. He traverses, approaches, and retreats, until the exquisite emotions absorb the feeble ray of reason, and he falls an eager victim to the fatal pleasure. The exclamation of the animal is the language of nature, and like every other part of the process, bespeaks emotions of delight.

The motion of the snake's tail, I believe, is not universal; at least among the cases of which I have been favoured with the relation, I recollect one or two in which it has not been noticed. Raff, in his Nat. Hist. vol. i. p. 293, speaking of this faculty in the rattle-snake, says, "elevating his tail, he keeps it in motion." A physician, in this city, related to me a case of charming by the cat, of which he was a witness. She stretched her body close to the ground, elevated her head, and erecting her tail, kept it in a perpetual undulation, at the same time, wreathing and contorting her body in the most inviting manner. She succeeded in catching the bird. An instance of this process by the cat once fell to my notice, and exhibited the same operations as in the one described. In the case of the dog, related by Dr. Williamson, he notices the tremulous motion of his body. It is not essential to the truth of the theory here advanced, whether the effect arises solely from a peculiar and forcible expression of the eye, which most reptiles are known to possess, or from a happy combination of the state of this feature with the movement of the tail in question.

If it be inquired how animals obtained the knowledge of this power? I answer, from nature! I mean not instinct. Prompted by the sense of hunger, which we know to be very forcible in most wild animals, he fixes his eyes on the object of his wishes. The hope and expectation consequent upon, and so inseparable from his desires, give an expression, at once the most eager and inviting. The notice

and approach of his object fixes his attention, and invites to exertion, until his wishes are accomplished. This faculty being once learnt, it is probably copied and taught to others. The motion of the tail is also a part of the same language of nature, and is common with most animals, when eagerly engaged; witness the calf and lamb in the art of sucking, and of the dog when intent on his prey.

If a nosological appellation be deemed essential to the completion of the doctrine, which I here attempt to support, I shall call it a case of *reverie* (studium inane). "When we are employed with great sensations of pleasure, or great efforts of volition in the pursuit of some interesting object or train of ideas, we cease to be conscious of our existence, and are inattentive to time and place. (Vide Zonoomia). The case in question may not improperly be termed *reverie oculorum.* The emotions excited in an infant, by a luminous body, as the sun's rays reflected by a mirror, is in point; so complete is the reverie, that the slightest touch or noise will convulse every muscle in its frame. We have often witnessed the aukward situation of a person who is so absorbed in pursuing a voluntary train of ideas, as to butt against an opposing object, or walk down a precipice at noon-day. This latter case differs from the act of charming only in this respect, that in the one case, the subject is occupied in comparing ideas, in the other, with great sensations of pleasure.

The impression on the eye seems to be made most forcibly by a luminous body; witness the attracting power of a lighted torch or candle on insects, bats and birds in the night season. Every one can call to mind the pleasurable and commanding movements of the organs of vision, produced by a brilliant fire in the night, or by the tremulous motion of the sun-beams reflected from a body of water—the eye becomes fixed, we lose every other faculty in the pleasing reverie, and our attention is diverted only with reluctance. A loon, accustomed to swim in a neighbouring pond, was invited, by the light of a candle in a dark night, to quit her residence on the water, and directing her course through a window, took her abode among the inhabitants of the room. The attractive influence of a night-fire on the wild and ferocious inhabitants of the forest is well known to travellers. The story of the jack-o-lantern, divested of its romance, is perfectly credible. My friend, Dr. Pascalis, witnessed the manner in which the inhabitants of the Ca-

nary Islands catch fish. A number of fires are made to float on the surface of the water in the night time. Around and close in contact with these, the fish collect in crouded shoals. A boat passes from one to the other, and they are taken up, in any numbers, in a scoop-net for that purpose. A similar mode of catching certain fish is known to be practised by the natives of this country. The peasants in the south of France have a curious mode of catching a sort of winged game, of the genus *Alouette* and species *Calande* of the French zoologists. A wooden box, of an octagonal form, is placed on a pivot, in such a manner that the least atmosherical impetus will keep it in motion. The surface of this is so plated with looking-glass as to reflect the sun's rays in all directions. Allured by this, these birds collect thick around and close in contact with the machinery, and are there caught by a spring-net. *(Vide Dict. d'Hist. Nat. par Valmont de Bomare*, and also *Ency. ou Dict. Raison. des Scien. &c. Paris.)* An operation, perfectly analogous to that of charming in the snake, is variously practised by that subtle animal the fox. A gentleman entitled to credit, relates the following fact. Perceiving a fox at a distance busily occupied, curiosity invited him to take a situation, from which he was enabled to watch his motions. The object of this animal he soon perceived to be a flock of ducks in an adjoining pond. The mode he took to accomplish his wishes was, by throwing his body into a curve, to tumble down a steep bank to the verge of the water. This operation was soon perceived to attract their notice and to allure them towards the shore. He succeeded, and grasped his prey. At other times, this animal has been known to succeed, by rolling stones down an adjoining declivity, or by exhibiting feats of activity along the water's edge; and I have heard a case related, in which the fox himself became a victim to this art.

But the practice of alluring prey, by fixing the attention of the eye, is not confined to brute animals. The practice of " playing up sea-fowl," as the gunners in the Eastern States term it, by making a small dog to run to and fro, in pursuit of pebbles, on the beach, is familiar and in point. I have seen an expert fowler place himself on the margin of the water in open sight, and by waving his handkerchief on the end of a staff, allure to him, and shoot a loon, almost within reach of his gun. And it is well known that a similar practice is successfully resorted to, to catch wild horses.

If the analogy in these cases is not complete, they certainly afford a similitude, in which, as to the principle, I am not permitted to perceive the difference.

The eye is not the only sense capable of hallucination. Every one has noticed, under circumstances favourable to the operation, the commanding influence of the ear. By the exquisite emotions produced by the operations of this sense, every other faculty has been immerged into a temporary oblivion. To reverse the case of the alluring faculty of serpents, we are told that the worral, a species of lizard, which frequents the grottos and caverns in the mountains on the west side of the Nile, is capable of being charmed by music, and thereby rendered so passive, as to suffer himself to be taken up without notice. Ulysses, when about to take his departure from the Island of Circe, is thus addressed by the Æœan monitress:—

" First thou shalt reach the syrens; they the hearts
Enchant of all who on their coast arrive:
The wretch, who unforewarn'd approaching, hears
The syren's voice, his wife and little ones
Ne'er fly to gratulate his glad return,
But him the syrens sitting in the meads
Charm with mellifluous song, while all around
The bones accumulated lie of men
Now putrid, and the skins mould'ring away.
But pass them thou, and, lest thy people hear
Those warblings, ere thou yet approach, fill all
Their ears with wax moulded," &c.

PLANTÆ PLANDOMENSES, *or a Catalogue of the Plants growing spontaneously in the Neighbourhood of Plandome, the Country Residence of* SAMUEL L. MITCHILL. *By* CASPAR WISTAR EDDY, *Student of Medicine.*

New-York, August 28th, 1807.

DEAR SIR,

IN compliance with your request, I enclose you a catalogue of the plants I collected in the vicinity of Plandome, during my late visit there.

The assistance you afforded me during my botanical excursion, and the polite attention I received from your family during my stay at Plandome, demand the warmest acknowledgments from

Your obedient servant,
CASPAR WISTAR EDDY.

To the Hon. S. L. MITCHILL, M. D. &c.

[This catalogue gives a good idea of the indigenous vegetable productions not only at the place specified, and its neighbourhood, but also on the whole north side of Long-Island, and the maritime parts of New-York. The species omitted or overlooked would readily be found and inserted by the indefatigable collector in a few more excursions. The present enumeration may be considered as a prelude to a more enlarged list of the native plants growing within eight or ten leagues of New-York, which is now preparing. And what adds to the correctness and value of the present list is, that a specimen of each individual has a place in the rich Herbarium of the author.] Edit.

Catalogue of Plants collected at Plandome, on Long-Island.

Acer montanum, *Aiton*, rough three-lobed maple.
pensylvanicum, *Lin.* smooth ditto.
rubrum, *Lin.* red maple.
saccharinum, *Lin.* sugar ditto.
Achillea millefoliùm, *Lin.* yarrow or milfoil.
Acorus calamus, *Lin.* calamus.
Actæa spicata, *Lin.* black snake-root.
Adiantum pedatum, *Lin.* maiden-hair.
Agaricus campestris, *Lin.* common mushroom.
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Agrimonia eupatoria, *Lin.* agrimony.

Alisma plantago, *Lin.* water plantain.
Allium canadense, *Lin.* wild onion.
Alsine media, *Lin.* chickweed.
Ambrosia elatior, *Lin.*
Ampelopsis quinquefolia, *Michaux*, } American ivy.
Hedera ditto. *Lin.* }
Anemone aconitifolia, *Mich.* }
dichotoma, *Lin.* } wood anemone.
pensylvanica, *Lin.* }
hepatica, *Lin.* liverwort.
thalictroides, *Lin.*
virginiana, *Lin.* Virginian anemone.
Anthoxanthum odoratum, *Lin.* sweet-scented vernal grass.
Antirrhinum canadense, *Lin.*
Apocynum androsæmifolium, *Lin.* tutsan-leaved dog's-bane.
cannabinum, *Lin.* common dog's-bane.
Aquilegia canadensis, *Lin.* wild columbine.
Aralia nudicaulis, *Lin.* sarsaparilla.
racemosa, *Lin.* spikenard.
Arctium lappa, *Lin.* burdock.
Arenaria rubra, *Lin.* sandwort.
Arethusa ophioglossoides, *Lin.*
Aristolochia serpentaria, *Lin.* Virginian snake-root.
Arum triphyllum, *Lin.* Indian or marsh turnep.
Asclepias decumbens, *Lin.* pleurisy-root or butterfly-weed.
purpurascens, *Lin.* blackish flowered silk-weed.
syriaca *var. exaltata*, *Mich.* common silk-weed.
variegata, *Lin.* white flowered silk-weed.
Aster cordifolius, *Lin.* heart-leaved aster.
dumosus, *Lin.* bushy aster.
linarifolius, *Lin.* linear-leaved aster.
novæ-angliæ, *Lin.* rough-stalked aster.
novi-belgii, *Lin.* lancet-leaved aster.
Azalea nudiflora, *Lin.* May-apple or wild honey-suckle.
viscosa, *Lin.* glutinous upright ditto.
Berberris vulgaris, *Lin.* barberry.
Betula carpinifolia, *Mich.* common black birch.
lanulosa, *Mich.* red birch.
papyrifera, *Mich.* } paper, or white birch.
papyracea, *Ait.* }
serrulata, *Ait.* common alder.
Bidens frondosa, *Lin.* water hemp.
tripartita, *Lin.* ditto.
Bromus ciliatus, *Lin.* brome grass.

Cactus opuntia, *Lin.* prickly pear.
Carduus virginiana, *Lin.* common thistle.
Carex flava, *Lin.* sedge.
folliculata, *Lin.* sedge.
leporina, *Lin.* sedge.
vulpinoidea, *Mich.* sedge.
Carpinus ostrya, *Lin.* horn-beam.
Cassia chamæcrista, *Lin.* Magothy-bay bean.
marilandica, *Lin.* Maryland or false acacia.
Ceanothus americanus, *Lin.* New-Jersey tea-tree.
Celastrus scandens, *Lin.* bitter-sweet.
Cephalanthus occidentalis, *Lin.* small button-wood.
Cerastium semidecandrum, *Lin.* chickweed.
viscosum, *Lin.* ditto.
vulgatum, *Lin.* ditto.
Chelone glabra, *Lin.* humming-bird tree.
Chenopodium album, *Lin.* goose-foot or lamb's-quarters.
Chrysanthemum leucanthemum, *Lin.* great daisy.
Chrysocoma graminifolia, *Lin.* golden rod.
Circæa lutetiana, *Lin.* enchanter's night-shade.
Clavaria coralloides, *Lin.* club mushroom.
Claytonia virginica, *Lin.*
Clematis ochroleuca, *Ait.* upright virgins' bower.
virginiana, *Lin.* climbing ditto.
Clethra alnifolia, *Lin.*
Clinopodium incanum, *Lin.* field thyme.
Collinsonia canadensis, *Lin.* stone-root, horse-weed, or horse-balm.
Comptonia asplenifolia, *Mich.*
Liquidambar asplenifolium, *Lin.* } sweet-fern.
Convallaria bifolia, *Lin.* two-leaved Solomon's-seal.
multiflora, *Lin.* Solomon's-seal.
polygonatum, *Lin.* ditto.
racemosa, *Lin.* ditto.
Convolvulus sepium, *Lin.*
Cornus alternifolia, *Lin.* female dogwood.
florida, *Lin.* male ditto.
Corylus avellana, *Lin.* hazel-nut.
Cratægus coccinea, *Lin.* black-thorn.
Cucubalus stellatus, *Lin.* starry chickweed.
Cunila pulegioides, *Lin.* pennyroyal.
Cuscuta americana, *Lin.* dodder.
Cyperus strigosus, *Lin.*
Dactylis glomerata, *Lin.*

Datura stramonium, *Lin.* green thorn-apple, Jamestown-weed, or stink-weed.
Datura tatula, *Lin.* purple ditto.
Dioscorea villosa, *Lin.* yam.
Diospyros virginiana, *Lin.* persimon, or medlar.
Dracontium fœtidum, *Lin.* skunk cabbage.
Elymus canadensis, *Lin.* lyme-grass.
virginicus, *Lin.* ditto.
Epigæa repens, *Lin.* trailing arbutus, or uva-ursi.
Equisetum arvense, *Lin.* horse-tail.
Erigeron canadense, *Lin.* flea-bane.
Eryssimum officinale, *Lin.* wild or hedge mustard.
Erythronium Dens canis, *Lin.* dog's-tooth violet.
Eupatorium maculatum, *Lin.* spotted bonesett.
perfoliatum, *Lin.* common do. or thorough-wort.
scandens, *Lin.* climbing bonesett.
Euphorbia maculata, *Lin.* spotted spurge.
polygonifolia, *Lin.* knott-grass-leaved ditto.
Fagus castanea, *Lin.* chesnut.
sylvatica, *Lin.* beech.
Fragaria virginiana, *Miller*, wild strawberry.
Fucus vesiculosus, *Lin.* rock-weed.
Fumaria glauca, *Curtis*, } glaucous fumitory.
sempervirens, *Lin.* }
Galium bermudianum, *Lin.* ladies' bedstraw.
trifidum, *Lin.* ditto.
Gerardia flava, *Lin. Descr. Syst. Veg. ed.* 14. *G. foliis lanceolatis pinnato-dentatis, caule simplicissimo. Descr. emendata. G. foliis inferne pinnatiffido-dentatis, superne lanceolato-dentatis; caule simplicissimo quadrangulare, pubescente; floribus subsessilibus.*
Gerardia glauca,* *(species nova mihi.) Descr. G. foliis inferne lyrato-runcinatis serratis, medio pinnatiffido-serratis, et superne lanceolatis serratis; caule glauco, paniculato; floribus pedunculatis.*
Gerardia purpurea, *Lin.*
Gaultheria procumbens, *Lin.* partridge-berry.
Geranium maculatum, *Lin.* crowfoot.
Geum virginianum, *Lin.* Virginian avens.
Glechoma hederacea, *Lin.* ground ivy.

* I have also found this plant about two miles and a half from New-York, but first observed the difference between it and the G. flava of Linnæus in the summer of 1805.

Gnaphalium magaritaceum, *Lin.* common life everlasting, or live for ever.
Gnaphalium plantaginifolium, *Lin.* plaintain-leaved ditto.
Gratiola virginica, *Lin.* Virginian hedge-hyssop.
Hamamelis virginiana, *Lin.* witch-hazel.
Hedysarum marilandicum, *Lin.* French honey-suckle.
nudiflorum, *Lin.* ditto.
viridiflorum, *Lin.* ditto.
Helianthus decapetalus, *Lin.* small-flowered sunflower.
Helleborus trifolius, *Lin.* gold or golden thread,
Hibiscus moscheutos, *Lin.* marsh-mallow.
Hieracium venosum, *Lin.* hawkweed.
Hydrocotyle americana, *Lin.* money-wort, or water navel-wort.
Hypericum hirsutum, *Lin.* St. John's-wort.
perforatum, *Lin.* common ditto.
Hypoxis erecta, *Lin.* yellow star of Bethlehem.
Impatiens noli-tangere, *Lin.* lady's-slipper.
Iris virginica, *Lin.* blue flag.
Iva frutescens, *Lin.* high-water shrub.
Juglans alba, *Lin.* mocker, or hickory-nut.
cinerea, *Lin.* butter-nut.
mucronata, *Mich.* shell-bark, shag-bark.
nigra, *Lin.* black-walnut.
tomentosa, *Mich.* pig or bitter-nut.
Juncus effusus, *Lin.* common rush.
nodosus, *Lin.* black-grass.
Juniperus virginiana, *Lin.* red-cedar.
Kalmia latifolia, *Lin.* laurel.
Lamium purpureum, *Lin.*
Laurus sassafras, *Lin.* sassafras.
Leontodon taraxacum, *Lin.* dandelion.
Leonurus cardiaca, *Lin.* motherwort.
Ligusticum actæifolium, *Mich.* black snake-root-leaved lovage.
Ligustrum vulgare, *Lin.* privet, or prim.
Lilium philadelphicum, *Lin.* wood lily.
superbum, *Lin.* meadow lily.
Limodorum tuberosum, *Lin.* tuberous-rooted base helleborè.
Liquidambar styraciflua, *Lin.* sweet gum, or bilstead.
Liriodendron tulipifera, *Lin.* white-wood, or tulip-tree.
Lobelia cardinalis, *Lin.* cardinal flower.
inflata, *Lin.* small blue-flowered lobelia.
syphilitica, *Lin.* large ditto.

Ludwigia alternifolia, *Lin.* base Virginian loosestrife.
Lupinus perennis, *Lin.* lupine.
Lycopodium alopecuroides, *Lin.* club moss.
Lycopus virginicus, *Lin.* water horehound.
Lysimachia quadrifolia, *v. ciliata, Willdenow,* hairy-leaved loosestrife.
Lysimachia punctata, *Lin.* field ditto.
racemosa, *Lamarck,*
stricta, *Ait.* } swamp ditto.
bulbifera, *Curt.*
Malva rotundifolia, *Lin.* running mallow.
Medeola virginica, *Lin.* cucumber root.
Medicago lupulina, *Lin.* black-seed, or nonsuch.
Melampyrum lineare, *Lam.* cow-wheat.
Mentha borealis, *Mich.*
affinis M. sylvestris? *Lin.* } water mint.
viridis, *Lin.* spear mint.
Mitchella repens, *Lin.* partridge-berry.
Morus rubra, *Lin.* red mulberry.
Myrica cerifera, *Lin.* bay-berry, or candle-berry.
Nepeta cataria, *Lin.* catnep.
Nymphæa advena, *Ait.* yellow water lily.
odorata, *Ait.* white ditto.
Nyssa biflora, *Walter,* sour gum or peperidge.
villosa, *Mich.* ditto.
Œnothera biennis, *Lin.* tree primrose.
parviflora, *Lin.* small-flowered tree primrose.
Ophrys liliifolia, *Lin.*
Orchis spectabilis, *Lin.*
Origanum vulgare, *Lin.* wild marjoram.
Ornithogalum umbellatum, *Lin.* star of Bethlehem.
Oxalis corniculata, *Lin.* sheep-sorrel.
stricta, *Lin.* ditto.
violacea, *Lin.* purple wood ditto.
Panicum glaucum, *Lin.* glaucous panic-grass.
Pedicularis gladiata, *Mich.* louse-wort.
Phaseolus helvolus, *Lin.*
trilobus, *Mich.*
Phryma leptostachya, *Lin.*
Phytolacca decandra, *Lin.* poke.
Pisum maritimum, *Lin.* sea-pea.
Plantago lanceolata, *Lin.* rib-wort, narrow-leaved plantain.
major, *Lin.* broad-leaved ditto.
virginica, *Lin.*

Platanus occidentalis, *Lin.* large button-wood, or western plane tree.
Poa-annua, *Lin.* annual spear-grass.
capillaris, *Lin.* hairy ditto.
compressa, *Lin.* flattened-stemmed ditto.
flava, *Lin.*
pratensis, *Lin.* common spear-grass.
trivialis, *Lin.* ditto.
Podalyria tinctoria, *Willd.* } wild indigo.
Sophora ditto, *Lin.* }
Polygala incarnata, *Lin.* milk-wort.
verticillata, *Lin.* ditto.
Polygonum arifolium, *Lin.* knott-grass.
aviculare, *Lin.*
hydropiper, *Lin.* arse-smart.
pensylvanicum, *Lin.*
sagittatum, *Lin.*
scandens, *Lin.*
virginianum, *Lin.*
Polypodium noveboracense, *Lin.* common fern.
Populus grandidentata, *Mich.* large toothed-leaved poplar.
tremuloides, *Mich.* American aspen.
Portulacca oleracea, *Lin.* purslane.
Potentilla simplex, *Mich.* cinquefoil.
Prenanthes alba, *Lin.*
Prinos verticillatus, *Lin.* Virginian winter-berry.
Proserpinaca palustris, *Lin.*
Prunella vulgaris, *Lin.* allheal.
Prunus pygmæa, *Willd.* sloe.
serotina, *Willd.* wild-cherry.
Pyrola maculata, *Lin.* spotted winter-green.
rotundifolia, *Lin.* round-leaved ditto.
umbellata, *Lin.*
Quercus alba, *Lin.* white-oak.
coccinea, *Mich.* scarlet or black-oak.
palustris, *Mich.* water-oak.
prinos, *v. monticola*, *Mich.* rock or chesnut-oak.
rubra, *Lin.* red-oak.
tinctoria, *Bartram*, quercitron, or black-oak.
Ranunculus repens, *Lin.* crow-foot, or butter-cup.
scelleratus, *Lin.*
Rhus copallinum, *Lin.*
glabrum, *Lin.* tanner's sumach.
radicans, *Lin.* poison-vine.

Rhus vernix, *Lin.* swamp sumach.
Rosa canina, *Lin.* dog-rose, or hip.
rubiginosa, *Lin.* sweet briar.
Rubus occidentalis, *Lin.* standing blackberry.
trivialis, *Mich.* running ditto.
Rumex acetosella, *Lin.* sorrel.
crispatulus, *Mich.* curled dock.
Salicornia virginica, *Lin.* samphire.
Salix longirostris, *Mich.* common willow.
Salsola kali, *Lin.* glass-wort.
rosacea, *Lin.* ditto.
soda, *Lin.* ditto.
Sambucus canadensis, *Lin.* elder.
Samolus valerandi, *Lin.* water pimpernel.
Sanicula marilandica, *Lin.* sanicle.
Sarothra gentianoides, *Lin.* base gentian.
Satyrium repens, *Lin.* lizard flower.
Saxifraga pensylvanica, *Lin.* saxifrage.
Scrophularia marilandica, *Lin.* American figwort.
Scirpus capitatus, *Lin.* headed rush-grass.
triqueter, *Lin.* three-sided ditto.
Scleranthus annuus, *Lin.* knot-grass.
Scutellaria lateriflora, *Lin.* scullcap.
Silene virginica, *Lin.* Virginian catchfly.
Sisymbrium nasturtium, *Lin.* water-cress.
Solanum nigrum, *Lin.* black nightshade.
Solidago altissima, *Ait.* golden rod.
noveboracensis, *Lin.* ditto.
sempervirens, *Lin.* ditto.
Sparganium erectum, *Lin.* upright burr-reed.
Sphagnum palustre, *Lin.* peat moss.
Statice limonium, *Lin.* marsh rosemary.
Thalictrum rugosum, *Ait.* meadow-rue.
Thlaspi bursa-pastoris, *Lin.* shepherd's purse.
campestre, *Lin.* ditto.
Tilia americana, *Lin.* lime tree, or bass-wood.
Trachynotia juncea, *Mich.*
Trichostemma dichotoma, *Lin.*
Trientalis europæa, *Lin.* chickweed, winter-green.
Trifolium arvense, *Lin.* field-clover.
repens, *Lin.* white-clover.
Triosteum perfoliatum, *Lin.* fever-root, or tinker's-weed.
Typha latifolia, *Lin.* cat-tail.
Vaccinium pensylvanicum, *Lam.* whortleberry.

Vaccinium resinosum, *Ait.* whortleberry.
Verbascum blattaria, *Lin.* moth mullein.
thapsus, *Lin.* common mullein.
Verbena angustifolia, *Mich.* narrow-leaved vervain.
hastata, *Lin.*
urticifolia, *Lin.* nettle-leaved ditto.
Veronica serpillifolia, *Lin.* speedwell.
Viburnum acerifolium, *Lin.* maple-leaved arrow-wood.
dentatum, *Lin.* tooth-leaved ditto.
prunifolium, *Lin.* black haw.
Viola cucullata, *Ait.* hooded-leaved violet.
palmata, *Lin.* notched-leaved blue ditto.
pedata, *Lin.* ditto.
pubescens, *Ait.* yellow-flowered ditto.
Vitis labrusca, *Lin.* chicken, or winter-grape.
vulpina, *Lin.* fox-grape.
Ulva latissima, *Lin.* common laver.
Uvularia perfoliata, *Lin.*
sessilifolia, *Lin.*
Xanthium strumarium, *Lin.* maritime-burr.
Zizania aquatica, *Lin.* water oats.

REMARKS *on a Spanish* PAMPHLET, *entitled,* " *Reflexiones sobre la Epidemia padecida en Cadiz y pueblos Circumvecinos, á fines del Anno de* 1800, *dirigidas à los Profesores de Medicina, por un Amante del bien Publico: En la Imprenta de D.* PEDRO GOMEZ DE REQUENA, *Impressor Mayor por S. M.*" i. e. *Observations on the Epidemic which prevailed in Cadiz and the neighbouring Towns, during the Fall of the Year* 1800, *offered to the Practitioners of Physic, by a Friend to the Public Welfare.* 104 *pages in* 8vo.

"——Multos in summa pericula misit
" Venturi timor ipse mali." *Lucan. Pbars.*

By Dr. FELIX PASCALIS.

WE may justly observe that this precious pamphlet, so expressive of the lively genius and of the elevated turn of mind of the Spaniards, is, after six years, rescued from oblivion, and even from the flames. Its eloquent author, Don RODRIGUEZ ARMESTO, a young officer of the navy, became the object of a criminal prosecution, shortly after he had published it with the usual permission of censors appointed by the government of his country.

But these judges of the performance, when they first examined it, had not yet been influenced by the prejudices and mortified pride of the whole host of contagionists, and no doubt exercised their powers with justice and liberality. A few weeks after it had circulated, orders from the court were issued for its suppression, and for the arrest and prosecution of the author, for diffusing *false*, *dangerous* and *seditious* opinions. He was soon compelled to subscribe to a formal declaration of his pretended guilt, and to a certain formula of retractation. More than fifteen hundred copies of his work were publicly burnt. Still a few of them were secretly kept and saved. Hence it comes to pass that we have it in our power to restore the work to its primitive object of utility, and to render to the writer the just tribute of honour and praise, of which he could not be deprived. May all iniquitous and absurd attempts to check or suppress true information, always meet with a similar fate!

We translate, or rather, we make a *free* translation of the following part of the introductory discourse, better to explain the motives of the writer, and to exhibit a specimen of his impressive mode of reasoning:

"The love only of my fellow creatures could induce me to investigate a subject so different from my usual pursuits; that powerful motive has encouraged me to encounter all the stings of criticism, and alone to oppose the many errors of the public. I shall, perhaps, lose my time, while but a few of my readers will feel disposed to renounce their opinions and alter their belief. If I were seeking for honour and fame, I should anticipate a disappointment; but, while defending the great interest which moves me, all kind of apprehension is superseded, whether I hurt the feelings of some, whether I expose the ignorance of others; provided I could excite opposition, produce discussion, and stimulate party spirit and inquiry. Experience and facts will then be consulted, from which abundant streams of instruction may be opened for the benefit of the afflicted race of mankind. To accomplish this laudable design, I promise to take all my means and weapons from sound logic and common sense. I shall be severe, but impartial and correct.

"To you, ministers of health, and guardians of life (at least you should be so), illustrious professors and practitioners, I dedicate my observations and my doubts. Should it be the case that I must oppose your doctrines, and warn my fellow citizens against your advice, I will do it with

all the respect due to your character, and to the noble profession you exercise. I solemnly declare that I have not any pretension to medical honours, nor to the rewards due to your labours; all that I feel is a strong sensation of sympathy for my poor fellow creatures; for them I would not hesitate an instant to sacrifice my life. Thus you have it from me, that I do not assume the privilege of intruding into the sphere of medical practice; nor do I boast of any kind of authority but that derived from my reading, observations and reasonings on the nature of the cruel pestilence which has lately desolated this beautiful part of our peninsula. Believe me, gentlemen, I only wish to consult with you, and I certainly shall keep within proper bounds.

"To be fortunate in my undertaking, and even completely successful, I wish only to encourage discussion and controversy. I shall thereby reinstate reason in its own rights, which panic terror has lately usurped. It shall be my pride to prepare for future times sufficient means to guard against illusions and imaginary dangers. If this little attempt removes the horrid effects of despair, you must confess the importance of it; and that only will be the most ample and consoling reward I could receive on this sublunary planet," &c.

The better to prove to his countrymen that the pestilence with which they were visited was the offspring of atmospheric and local circumstances, the author adduces, firstly, accurate meteorological observations, and ascertains the unusual hot temperature which prevailed during the sickly period. These are official, as he was, by royal authority, keeper of the royal observatory of the isle of Leon. We are informed that the thermometer marked 95°, a degree of heat unusual in those latitudes, equal to that of Senegal, and greater than that of the equatorial continent of America. In the rays of the sun, and in damp places, the mercury often rose to 112°. But what must have much more contributed to the perturbation of the animal economy, was the frequent variation in the temperature, from 5 to 15°. The winter rains having been protracted one month later during the spring, the moisture was as excessive as it ever could be observed in countries subject to pestilence. In fine, forty days of the most distressing easterly wind, highly predisposed every living body to disease. With these data, Don Armesto warmly urges a series of questions concerning the morbid effects that are well known and ascribed to

atmospheric alterations. All these he finds united as characteristic symptoms of the yellow fever, that Protean disease, which can assume all forms and all types.

I perfectly agree with our Spanish writer when he asserts that the predominating cause of this pestilence resides in the vital principle or nervous system. As an able pathologist he enumerates the following occurrences: the convulsive state of the diaphragmatic plexus and stomach (he does not forget to mention that these are the seat of the soul, according to Aristotle), the relaxation of the vascular system, the various sorts and stages of delirium, fury, madness, *aërophobia*, *hydrophobia*, *medophobia;* all of which are but different degrees of spasmodic affection. These effects were more apparent and fatal in the young, sanguineous, and robust constitutions; their nerves being more susceptible of irritation; while the infirm, weak and aged people, whose fibres and nerves seem more impervious, were generally preserved.

Don Armesto thinks that the pestilential epidemic was much aggravated by the power of imagination, under those circumstances which had much impaired public tranquillity and prosperity. "A long and disastrous war had disgraced," says he, "our nation, ruined our commerce, deprived our labouring people of their usual means of subsistence, and depressed our minds by a just apprehension of still greater calamities." He quotes the eloquent words of the unfortunate Baillie of Paris: "Imagination can renew or suspend animal functions; with the aid of hope it gives life, by terror it depresses it. During the short interval of a night, it has sometimes made a man grey; in an instant it suppresses or restores the faculty of speech and the use of the limbs; it also destroys or reproduces generative powers, and, in fine, it is a minister of death." But let us hear our writer describing the deplorable effects on imagination, from rumor, fear and panic of an existing CONTAGION within the reach of us: "It operates on the mind as rapidly as lightning can inflict death, and every precaution to avoid its baneful influence fills with chills and terror, as it always supposes the possibility of an imminent danger. How many, who, after being removed from all points of contact, were still tortured by the idea of an invisible atom of contagion, and thus always persecuted by the ghastly spectre of death! Suppose, now, that all those delusions of the imagination are transformed into doctrinal tenets, authorised by the faculty, adopted by the most influ-

ential people, and sanctioned by the government; well, then they are more popular, and surely the more fatal; then it is that all possible evils from panic, precipitancy in the public and private measures, from inconsiderate advice, and ignorance in the practitioners of physic, must take place.

Don Armesto justly and strongly reproaches physicians for having aggravated all those imaginary evils, by being panic-struck themselves, and the first adherents to, and supporters of erroneous doctrines. They abandoned sometimes their station; they forgot that in the midst of a pestilential havock, they should, like soldiers, remain on the breach; or *that, like sacred ministers, they had a God, an altar, and a sanctuary, within the precincts of which, if it is necessary, they must fall the first victims.* Here our liberal and intelligent observer stops, as if he would by no means delight in vain and severe sarcasms. He explains why medical practitioners may thus appear so reprehensible in the community, while their profession is exercised upon mercenary terms only; and, "moreover," says Armesto, "this is not the only profession which the perverse institutions of Spain undervalue, in the inverse ratio of its merit and general utility. For the honour of the Spanish faculty I can with pleasure mention myself as a witness, and thereby add to the testimony of our persecuted writer, that many worthy physicians devoted themselves to the pestilential scourge, and that many more would have vigorously opposed the frightful torrent of importation and contagion, had they not been, by an inquisitorial authority, compelled to be silent.

The measures which were resorted to for the alleviation of the public calamity, is another topic of the inquiries of our writer, who, with the same candour, points out their cruel tendency to increase the alarm, to confuse the operations of civil and medical authority, and to multiply the number of unfortunate victims. Instead of resignation and comfort, religion did but administer despair, with the awful scene of a last judgment; for, with every case of death a funeral procession was instituted; and while holy images, relicts, and sacramental objects were incessantly offered to the eyes of a dejected people, thundering preachers were solemnly warning every one of his approaching and final dissolution. Public fires were also kindled in the streets, with the intention of purifying the air, and thus an artificial heat destroyed the salutary effects of

the least refreshing breeze. In places where the contagion *had been* supposed to be universally diffused, they were still distressing themselves with systems of seclusion and quarantine for every individual, for articles of furniture, of necessaries of life, and even for domestic animals, which could be in the least rendered suspicious: thus it happened, that after having lost his friends and relatives, another victim, too hastily removed, was often sent alive to the grave. Besides, what effect could result from numerous lines of interception between neighbouring towns and villages, between one part of a city and another, and from house to house, but that universal supreme law of self-preservation, "*salve el que pueda*," (let every body take care of himself) which, the more it is aroused, the more it defeats the principal end of restrictive laws.

We sincerely regret not to have it in our power to notice, within the bounds of our remarks, every thing that is eloquent and forcible in this little work, and all that we might apply to ourselves at some future calamity; but we shall not omit another kind of argument against the imaginary monster of importation and contagion.

Our writer now takes up the popular account of the importation of the yellow fever from America into Spain, and reduces it to mere surmises, and incorrect allegations, in the most material circumstances. He likewise proves that no such disease existed in the different points of departure of the alleged vessels; that, on the other hand, it had made its appearance in several populous towns in Spain and Barbary before any possible communication could take place with foreign vessels and their crews. Here we are informed that the same epidemical constitution existed along the Mediterranean coasts as far as Leghorn and Genoa. In this large metropolis, where an hundred and fifty persons died every day with the yellow fever,* it is proved that no American vessel could be accused of having imported it, as Genoa was long before closely besieged by land, and blockaded by sea. We pass over many other interesting testimonies and remarks on that subject, which have already been noticed in the Medical Repository.

Don Armesto happily describes that unfortunate credulity with which the most absurd, marvellous, or unfounded opinions are received amidst the terror and distresses of a pub-

* Vide *Gaetano Palloni.*

lic calamity. The better to illustrate his idea, he observes, that if an epidemical catarrh, attended with tooth-ach, had pervaded the whole peninsula of Spain, its singularity would have no doubt engrossed all conversation, and suggested all possible means and preventives against catching cold and against odontalgia; but suppose that this catarrh, with tooth-ach, had always been attended with the loss of one or many teeth, what panic and uproar would it not have roused among all, from the young beauties and the most admired beaux of the day, to the most venerable, old and reverend sages, who never like to part with their last remaining stumps? Who would not have listened to theories and speculations concerning the origin of this new and dreaded plague? Who would not have pretended to decide or to give weight to one of the controverted opinions, especially with respect to its probable and possible means of diffusing itself by *contagion*, *importation*, &c.* Now, change the name of the epidemic, and you have a true estimate of the rise and progress of our most ridiculous notions on the yellow fever of America and Andalusia.

Before he completely refutes the doctrine of contagion, our young philosopher perplexes his antagonists, on the authority of recent facts, by describing the very irregular and unaccountable diffusion of a specific poison in many places and towns which were remote from the primitive focus and scenes of infection. He adverts to the frequent occurrence of mortality in the southern provinces of Spain, during the fall of the year, when the atmosphere is rendered so impure by the summer exhalations, and the periodical decay of great masses of vegetable productions. He mentions, indeed, that Seville is proverbially offered as an instance of annual plagues, where it never was thought necessary to establish rules of quarantine on any description of foreign vessels. Another interesting subject of controversy he notices is that of different means of contagion, which he reduces to *absorption* and *respiration*. The first requires that the specific poison be applied to a mucous membrane, or on the skin, immediately after the cuticle has been abraded, &c. The second, if applied to the organs of res-

* This supposition is not altogether imaginary. History records a long, animated and serious controversy which once took place among the learned of Germany, respecting the possible formation and growth of a golden tooth, with which a child was said to be born. It never ceased until a counter statement of the fact was perchance procured!

piration, must produce effects and symptoms utterly different from yellow fever. This last position, however, is exceptionable in strict analogy with the small-pox. We prefer admitting the possibility of infection in a poison that may be rendered volatile. Anciently none was more dreaded than that of the phthisis pulmonalis. Many European hospitals are still regulated by severe restrictions to prevent its propagation, while that kind of contagion is now disbelieved and rejected by medical philosophers. Armesto very properly adduces on this subject the famous experiments of Portalis of Paris.

The reader may have perceived that many of the above arguments were offered in refutation of various objections. A very common one among the contagionists is, that they have a right to attribute the same deleterious effect to certain specific molecules, which we ascribe to the whole atmosphere, and to immense columns of impure air. But, then, replies Don Armesto, you must proportion the causes to the effects. Your atoms of contagion, which you suppose regenerate themselves, are but a few, in comparison of the immense deleterious masses of atmospheric fluid, that, during many months, may be incessantly renewed and circulated over a large portion of the country. Yet we do not see that two millions of corpses, committed to the earth during these few years, have altered in the least the constitution of the atmosphere of Europe; nor that twenty or thirty thousand dead bodies, after a battle, can diffuse deleterious miasmata—unless atmospheric circumstances promote their fermentation, and diffuse their pestilential effluvia! "Were it not for the agency of this last circumstance, I would exclaim, with Aristotle, *the putrefaction of one is the generation of another.*—When I see professional men so much terrified by the specific contagion hidden in a vessel, or in a bed, I cannot but represent to myself half a dozen musquitoes flying away from a large room, lest they should be infected by a few dead bodies of their own family in the same. In fine, let it be granted, for the sake of argument, that one case or more were evidently contagious; believe it so, if you like; but I engage myself, for every one you shall mention, to produce a great number of instances which left no traces of poison."

Don Armesto earnestly requests his fellow citizens to reject this barbarous and antisocial opinion of importation and contagion, alleging, that under its baneful influence

many unfortunate victims were abandoned in their beds to starvation, or shot at the very doors of houses where they endeavoured to seek an asylum, and that many more were carried alive into the grave!—To every class of his countrymen he addresses pathetic and well-appropriated remarks on their respective duties, during the distressing calamity of pestilence. The poor, the labouring, and industrious classes, alas! are then more surely devoted to the want of necessaries of every kind; while the rich possess every possible help against death, or can find an asylum in their rural retreats. Thus Armesto regrets that a large population should be confined in towns and cities, which were so often the receptacles of all physical evils, and the focus of pestilence. His last and philanthropic wish is, that every community in towns and villages should be dispersed over spaces of ground accommodated to all the comforts of ventilation and country habitations, instead of being crowded within the limits of walls and fortifications, and of commercial conveniences. With a selection of a few preventives and remedies, he terminates his performance.

An appendix is subjoined on the influence of the atmosphere on nervous affections, on bile, on fever, on the delusive appearances of contagion, and on mephitism, which display much philosophical and medical knowledge. Had all these valuable materials been arranged more methodically and scientifically, we would not hesitate to pronounce this little work a treasure and master-piece, while it remains a perfect model of ingenuity and eloquence.

May the young and learned author never be deterred by the persecution he has suffered, nor by the errors of his contemporaries, from his philosophical pursuits! He will, it is hoped, see a better age, do honour to his nation, and reap with celebrity an universal homage of gratitude from his fellow creatures.*

* As the Medical Repository circulates in Spain, it may be of some importance to Sr. Don Rodriguez Armesto, that I should subjoin my declaration that I never was induced, directly or indirectly, by him to write the above remarks. When I was in Andalusia, I never could meet with him in any of the different towns I visited. I was told that he resided in Laisla, and there I was but twenty-four hours, from Sunday morning, the 20th of October, 1805, until next day, in my way to Algesiras and Gibraltar. Two copies of his work, and the perusal of all the filed original papers relative to his criminal prosecution and trial, were procured for me by a gentleman who was not personally acquainted with him.

The SUBSTANCE *of an* EXTEMPORE LECTURE *given to a promising young Physician, to evince the Necessity of clearly understanding the first Principles of Medical Science: Communicated to Dr.* MITCHILL, *by the Author, Dr.* JOSEPH YOUNG.

THOSE physicians who are ignorant of the physical or generative cause of *heat* and *motion* in the human body, and of the doctrine of *revulsion*, have yet to learn two of the most important lessons in medical science. The first, as it respects the *spring* of *animal life* and *sensation;* and the second, as it respects the knowledge of the *cause* and *rational treatment* of all *spasmodic* complaints, from the epilepsy and angina pectoris to the common hickup.

But when they are taught, and are rationally convinced, that the *animal spirits* are the *physical cause* of *heat*, *life*, *sensation*, and *muscular motion*, it will excite them to inquire, from whence do we acquire this all-important fluid? They should then be informed, that while we are in health we receive a constant supply from two different sources, to wit, from the *stomach*, in the digestion of our food, by *alimentary fermentation;* and, secondly, by inhaling and retaining the *electric* part of the *air* by the lungs, while the noxious or useless part is expelled by expiration. The first proposition will excite them to observe by what means alimentary fermentation may be promoted when it is deficient, and the patient weak and spiritless; and, also, how it may be vitiated by improper diet and medicines. It appears to be of a subacid quality, by its coagulating milk; therefore, an imprudent use of alkaline remedies, insipid fat, and oils, ardent spirits, and stale fermented acids, first check it, and, if persisted in, finally destroy it. The *runnet*, or gastric ferment taken from the stomach of a calf, taken in a watery solution of Muscovado sugar, or drinking cheese-whey (after cleansing the stomach with a gentle emetic), will assist in restoring it; which should be aided by a proper diet, and gentle corroborants, given in aqueous infusions rather than in wine or spirits.

By the second proposition they will be excited to discover what situations generally furnish an atmosphere best suited to assist in removing the various complaints of their patients; and when they are properly informed, they will not send a plethoric patient, with strong elastic vessels, to high

grounds, to inspire an *air* highly replete with the electric fluid, which is known to increase heat by accelerating the motion of the fluids. Neither would they send their *cachectical* patients to a low damp ground in the vicinity of a marsh; nor their consumptive patients to the sea side, to bear the heat of August one hour, and the chilling air of November the next. Chemists analyze various substances to discover their component parts; so should prudent philosophers analyze every subject in their own minds, and never rest satisfied until they have discovered the first principles of the subject which they wish to investigate. Many, to avoid the trouble of this preliminary procedure, learn their lessons like a parrot, and talk most fluently about an admirable power inherent in all matter, termed attraction, by means of which it can act powerfully where it is not present. And the physician can talk plausibly about muscular motion being performed in a remote part of the body, by the energy of the brain, which is a soft inelastic matter, contained chiefly in the *scull;* of spasm on the surface of the body, while the internal parts are oppressed with an extreme degree of heat; but he is not anxious to investigate the physical cause of this cold and spasm on the surface, which returns at regular periods, but satisfies himself with observing that this cold and spasm, by some occult means, produce a fever.

I have alleged that fire is the physical cause of *heat*, *fluidity* and *motion;* but it is evident that it varies both its mode of operation and intenseness of action with almost every different combination which it assumes. But the only combinations which we shall notice at present, are those which constitute the *electric* and *magnetic* fluids, and the spirit of life which was at first breathed into the nostrils of man by his Creator, which has continued ever since to be the spring of animal life in man; for when he ceases to inspire this spirit of life, he must also cease to live. The electric fluid, which is evidently a modification of fire, is nature's almost omnipotent universal agent, which pervades all things, producing almost every change in matter, varying its operations with almost every different combination. That the magnetic is a modification of the electric fluid, having some of its qualities changed by acting through iron and steel, is also evident, because a temporary *polarity* can be communicated to the magnetic needle either by lightning or the electric machine. And the northern arm of a

cross, on the steeple of a church, will acquire a strong magnetic power. And it is almost as evident, that our most permanent supply of spirits is prepared in the stomach by alimentary fermentation, uniting the electric fluid with the chyle, and elaborated into animal spirits in the glandular fabric of the brain. But I conceive no reasonable doubt can be entertained that it is by the efficacy of the electric fluid received by the lungs in every inspiration, that the circulation of all the fluids in the system is carried on in their proper vessels, even through the hair and nails; for when a man, in perfect health and vigour, ceases to breathe, circulation will soon cease, and if respiration cannot be restored, death is inevitable. When physicians can perceive and clearly comprehend how we are actuated and governed by electricity, that the animal spirits are a modification of this fluid, which is the physical cause of *sensation*, and that the *nerves* are its *conductors;* they are prepared to understand the doctrine of *revulsion*, and *not* before; for, if the animal spirits are the cause of *sensation*, it must be evident, that when they are accumulated in any *nervous* irritable part, they must produce supersensation, pain and *spasm*, in proportion to their quantity and activity. But as the nerves are the conductors of this active fluid, the doctrine of *revulsion* teaches the judicious physician, who understands the laws of the animal economy, to excite the spirits to leave the part where they are acting so injuriously, to a remote part where they can do less harm. By the law to which I allude, when ever an irritable part is stimulated to a painful degree, the spirits rush instinctively to the stimulated part, and leave the part first affected perfectly easy, provided this is done before the part first affected has been injured by the continuance of the pain.

The spasmodic complaints of weakly people are chiefly caused by a retention of the *electric* part of the *air* which we inhale in respiration; which should be continually carried off by a free regular perspiration, and be succeeded by a fresh supply at the next inspiration. But as this portion of our spirits should have but a momentary residence in the system, it still retains much of its pristine electrical quality, and is, therefore, very subject to the power of *conductors*, and might, by a judicious improvement of Perkins's points, be conducted to any part of the body, or taken from it at pleasure. This excellent means of *revulsion* is preferable to most of the others, as it inflicts no pain, and acts with

efficacy on *pains* that are *totally spasmodic*, provided the operation is performed before the part is much injured by the continuance of the pain; but cannot yield permanent relief where real inflammation or congestion have taken place. Drs. Smith and M'Bride, of Dublin, have cured several patients afflicted with angina pectoris, by applying smart epispastics to the insides of their thighs. And I have been informed by a creditable physician, that he has known that fatal spasm, denominated the locked-jaw, relaxed and finally cured by a solution of tartar emetic.

In the year 1777, there was a soldier brought into the hospital at Albany, subject to frequent violent epileptic fits. I told one of the juniors to provide a small scourge of very slender rods, and when the patient took a fit, to whip him smartly in the soles of his feet, which was performed, and the fit totally relaxed at the third or fourth stroke. He was finally cured by proper internal remedies, and returned to his regiment. These cures, and this last recited case, demonstrate the great utility of *revulsion* in all cases of *spasm*, and point out some of the means by which it may be effected.

If I have not been unsuccesful in my researches, and if instead of *truth*, I have not been propagating *error*, the most important *principle* in *physiology*, or natural *philosophy*, remains yet to be *investigated*, to wit, the *physical* or *generative cause* of *motion*. For until this discovery is made, almost every phenomenon in nature will continue to be an inscrutable mystery; and the opinions and systems of philosophers continue to be founded on mere conjecture, and defined in terms that have no determinate meaning. They may continue to amuse themselves and others, by talking about an imaginary power, supposed to be *inherent* in all *matter*, denominated *attraction*. By means of this quality, they suppose one body or mass of matter capable of *drawing* every other body or mass of matter toward it, although placed at an immense distance from each other, without any other *connecting medium* than *fluid air*, or even a *perfect vacuum!* The word *attraction* in this case conveys no intelligible idea to the mind, of the *manner* in which this wonderful *occult*, *magical power* is *exerted*, even to exceed the powers of the Deity. Sir Isaac Newton offers the following argument, to prove the omnipresence of the Deity, viz. Deus omnipræsens est, non per virtutem solam, sed etiam per substantiam, nam virtus sine substantia, subsistere

non potest. But his followers have not confined the powerful *operations* of *matter* to such *pitiful*, *scanty*, *contracted limits*. We all know, that *attraction* or *drawing* is performed by the *active exertion* of the *power* of one body upon another, *connected* to it by some *cohesive ligament* or *medium*; but if the *connecting medium* be *divided*, or *removed*, the *means* of *attracting* or *drawing ceases*. For it is as clearly demonstrable that matter cannot *act* where it is *not present*, as that *two masses* of *matter*, of equal *bulk* and *solidity*, cannot *occupy* the *same space*, at the *same time*. I have alleged, that *fire*, in its various combinations and modifications, is the only physical, or *generative* cause of *motion*, and have requested the literati, who may not have made the discovery, to produce even one instance, of the *generation* or production of *motion*, without either the *immediate* or *remote action* of some *combination* or modification of *fire*. But I do not know that any person has ever attempted to do it, except one, who alleged, as a complete refutation of my doctrine, that motion could be produced, without the interposition of *fire*, by the elastic springs of a *steel trap*, which would act with great force and *velocity* in the coldest weather. I replied, that I should be exceedingly gratified with the sight of a steel trap that could *expand* its *jaws* with sufficient *force* to *bend down* its own *springs*, to prepare them for *action;* or to be introduced to a man who could *set* a steel trap, out of whose system every kind and degree of *fire* had previously been extricated. I observed, that steel springs had no *nisus* to *action*, until they were forcibly *bent*, by some adventine active power. He then mentioned the rapid *motion* of water, running down a precipice. I told him, that if every *kind* and *degree* of *fire* should be *extinguished*, so as to render it completely *inactive*, there would be no such *element* as *water;* even that of the main ocean, to its very bottom, would be congealed into one solid mass of ice; the earth would be immersed in the tenfold *darkness* of Egypt, with the awful *silence* of the *grave*, and an eternal *calm*, or *cessation* of all *motion*. Every substance, both animal and vegetable, would remain nearly in the same condition in which they were at the end of the first month; as every *particle* in their *composition* would be *immoveably fixed* to its place by the *frost*, there could be no *putrefaction*, or *change*. The *trees* in the forests would *stand*, with all their *leaves* on, at the end of one thousand years, exactly as the *frost* had *fixed* them at first; because

there could not be any *wind*, or *motion* of any kind to *shake* them off. Nor any *attraction* to *draw* matter from one place to another, by *invisible cords* of *incoherent ether*.

I am confident that nothing has had so much influence on the human mind, to establish the almost universal belief of an invisible power, denominated *attraction*, that can act powerfully on other bodies, at an immense distance, without any *intermediate connecting* substance, as the seemingly *occult* operation of the *magnetic effluvia*, which is evidently a *modification* of *electricity*, having some of its *qualities changed* by acting through iron. As *polarity* can be *communicated* to the *magnetic needle*, and *reversed* at pleasure, either by *lightning*, or the *electric machine*, it is a well known fact, that a strong excitement of the electric conductor will repel the weaker atmosphere of any small body presented to it, to the opposite side or end, which, by reacting against the surrounding atmosphere, impels it to the conductor, where it receives an uniform atmosphere, and is repelled by reaction. In like manner the magnetic effluvia flowing in a strong current from north to south, propel the weaker portion of the same fluid, to the south end of the magnetic needle, and cause the other end to point to the north, or to come in contact with the magnet. But if the same end of the magnet is presented to the *south* end of the *needle*, it will be repelled with great velocity, because the *accumulation* of the *effluvia* in the south end of the needle confers the power of *reaction*. The above is a summary sketch of the principles upon which the doctrine of repulsion and appulsion is founded. If they are erroneous, I wish to see them refuted.

An Account *of two Cases of* Convulsions, *alternating with temporary* Insanity, *relieved by violent Pressure over the* Stomach. *By* Samuel Brown, *M. D. of New-Orleans.*

Mr. ——, a gentleman aged about twenty-five, has for ten years been occasionally subject to violent spasmodic affections, resembling painful epilepsy, alternating with insanity of a very singular kind. He was originally attacked whilst labouring under very strong emotions of grief for the death of two near relations, and his subsequent

attacks have been attributed to similar causes, and to the indulgence of high degrees of anger.

In January last, whilst engaged very warmly in argument with a gentleman on the affairs which at that period excited so much alarm in our city, his ideas becoming more and more incoherent, he was seized with convulsions, and fell senseless on the floor. As soon as the muscular exertions had ceased, his countenance assumed the lineaments of the deepest sorrow, and his voice was changed to the most solemn tones of tragedy; and no actor ever surpassed him in expressing the agonizing sensations with which he was penetrated. The family where he resided, and the familiar friends who surrounded him, were now the undertaker, the sexton, the pall-bearers, and the mourners at the funeral of his lost relations. No gloomy idea, no painful sensation was forgotten. To consolation he was wholly insensible. "His eyes were open, but his sense was shut." He attended to nothing that was said to him. In this situation he continued for ten or twelve minutes, and then was seized again with convulsions.

From eight o'clock P. M. until twelve, we endeavoured to relieve him by antispasmodics, and before I despaired of their efficacy, I had actually given more than two ounces of strong laudanum, which produced no sensible effect, except that of exciting vomiting.

Recollecting that I had seen some cases of hysteria relieved by a bandage tied tightly round the body, I determined to try one in the present case; and as I was attempting to tighten it, my hand was pressed with some force against the stomach. Immediately I perceived a change in the countenance of the patient. I augmented the force gradually, and to my astonishment his countenance brightened into cheerfulness. He smiled, and begged me to press still harder. Imagining that I might be deceived, I withdrew my hand. All the symptoms recurred, and were again relieved by the same means. As Dr. Dauzac, and several other gentlemen of intelligence were present, who expressed much admiration at the effect of the experiment, I was induced to repeat it often, and it became really amusing to see the "whole tenor of his soul" changed by means so simple. From twelve o'clock until four the experiment was repeated at least ten times, with uniformly the same result. When the convulsions were very strong, my own force was not sufficient to check them. Another person's

strength was added occasionally. It was my intention to have continued the pressure by means of a tourniquet, but that instrument could not be procured. At four o'clock the patient went to sleep with my *whole weight resting* on my knee, which was placed over his stomach. I gradually withdrew and left him. In the morning he was free from spasms, and his understanding composed.

Mrs. ——, a woman of about twenty years of age, had been subject from her infancy to a complaint similar to the above, except that her insanity, which succeeded the convulsions, was more irregular, and her expressions more incoherent. The spasms likewise were more violent. She had been more than an hour in convulsions, with short intervals of insanity, when I saw her. I immediately pressed my knuckles with great force into the pit of the stomach, and in less than five minutes she was free from convulsions, and her mind composed. I withdrew my hand, and the complaint returned as in the other case. I left a person with her to continue the pressure, and found her well the next day. These are the only two cases in which I have had an opportunity of trying this simple remedy for those diseases, which are so distressing to the patients themselves, and so alarming to the friends and relations. The sympathy between the stomach and brain has been much talked of, but I am afraid little understood. It certainly deserves to be still further investigated. In the United States, especially in our large cities, opportunities cannot be wanting to try this mechanical mode of treating epilepsy and hysteria.

FATAL CASE *of* SCURVY, *supposed to have arisen from the immoderate Use of Hickory-Nuts: Communicated by Dr.* GIDEON C. FORSYTH, *of Wheeling, Ohio County, Virginia, to Dr.* MILLER.

ON the 29th of November I was called on to visit the daughter of Mr. J. Durrant, of Belmont county, Ohio, a girl of about seven years old, of a good constitution, who had always been healthy until a few days previous to my visit, when she began to complain of want of strength, a swelling of her gums, which soon began to bleed, and now they were black, and she could not move her lips without occasioning a profuse discharge from them;

her face and extremities were swelled, and her appearance clay-coloured; her whole body, the face not excepted, was covered with livid spots, from the size of one inch in diameter, to that of a pin's head; the largest resembled a bruise, the smaller were sometimes red, resembling fleabites. On the least excoriation of the epidermis, the blood would gush out of a very dark colour. Her pulse was small and quick, breathing short, appetite for animal food was bad; she complained of no pain, and her bowels were regular.

On inquiring the cause, none could be assigned, only her parents said that for three or four weeks past she had lived almost wholly on hickory-nuts (which were in great plenty), and that they had tried to keep them from her, but could not; and as they found she continued well, they let her use them; in fact, they had constituted her whole living. This circumstance induced me to believe that the disease was caused by a privation of oxygen. I accordingly directed a vegetable diet of the acescent kind, such as turnips, apples, cabbage, &c. I gave bark and elixir vitr. internally, and directed the external application of vinegar to her gums. In five days the large dark spots had nearly disappeared, her gums had ceased to bleed, and she seemed in a fair way of recovery. After this I was prevented from visiting her, on account of the ice in the Ohio river, for more than twelve days, when her father came and requested me to visit her again; said she had got worse; that after I last saw her she was so much better, that they concluded there was no further need of medicine, and as it was disagreeable to her, they had left it off entirely. When I came I found all the symptoms much worse, and, in addition to them, her abdomen much swelled, a discharge of black-coloured blood by stool, her appetite gone, the blood gushing from her gums, nostrils, ears, and several other parts, her pulse weak and irregular, respiration difficult; notwithstanding, she was still able to walk about, and had never been confined wholly to her bed. These symptoms increased until the next day, when she died.

Hickory-nuts, we know, are composed principally of hydrogen and carbon. Dr. Beddoes thinks that "scurvy is caused by a privation of oxygen." This seems to be the effect of those nuts, and the disease had every appearance of the sea-scurvy. The lungs are said to separate the oxygenous portion of atmospheric air, which gives the florid

colour to the blood; but it seems equally necessary that a due proportion of oxygen should be mixed with our food, in order to give a healthy quality to this fluid.

The humoral pathology seems to be too much neglected by late writers. There are many diseases which cannot easily be explained in any other way. I forgot to mention that this patient had made use of but very little exercise, which in all probability had a tendency to shorten the duration of her disease.

CASE *of* CONVULSIONS, *successfully treated by large Doses of Opium and other Stimulants: Communicated by Dr.* J. W. MONTROSS, *of New-York, to Dr.* MITCHILL.

ON the first of the present month, August, about a quarter after nine o'clock A. M. I was called to visit a Mrs. B. at No. 100 Reed-street. I found her convulsed, and was informed that she had been in that state the greatest part of the last twenty-four hours. Her pulse was small, and the surface cold. She complained of pain in her stomach; but when requested to point out the pained part, would press her hand upon the inferior part of the sternum.

I exhibited about one hundred drops of liquid laudanum, with at least as much vitriolic ether, directed pediluvium, and after that covered her warm in bed, with warm irons applied to her feet and the pained part. I applied ether to about the quantity of an ounce, to her extremities and sternum immediately after the warm bathing of her feet and her returning again to bed; as soon as this was done, warm irons were applied as I had directed. The arterial action still failing, and pain, coldness, and spasm increasing, I applied four ounces of spirits of volatile alkali in the same manner as I had applied the ether.

About fifteen minutes after ten o'clock her pulse became more full, and the surface warmer, and she was free from pain and spasm until half after ten, when the arterial action began to decline, and pain, coldness, and spasm to return. I repeated the exhibition of laudanum and ether in the same quantity as before.

At fifteen minutes after eleven, her disease appearing to progress, I again exhibited laudanum and ether in the same quantity as before.

At a quarter before twelve, the disease fast progressing, I increased the quantity of laudanum to one hundred and twenty-five drops, with at least as much ether, and bathed the extremities and sternum with tincture of cantharides, I think to about the quantity of an ounce.

At twelve her pulse was almost imperceptible, and coldness, pain and spasm progressed with increasing rapidity. I was now alarmed, and pronounced my fear that death would shortly close the scene. I gave her one hundred and fifty drops of laudanum, combined with a greater quantity of ether. She vomited in two or three minutes after its exhibition. Her flesh now became livid, and so cold that it was disagreeable to the touch.

At ten minutes after twelve, having prepared a large dose of ether, on attempting to exhibit it, I found her jaws locked. The storm now subsided to a calm. As soon as she was seized with trismus, convulsion ceased in every other part, and she lay listless. I immediately worked about seven grains of opium into a vermicular form, and introduced it into her mouth through an aperture occasioned by the loss of a tooth. As soon as this was done, I bathed the sternum with tincture of cantharides, and applied a plaster of them.

At half after one I exhibited as much more opium. In a few minutes after this I found that the arterial action began to increase, and a glow to appear in her face. I asked if she felt easier, and she assented by a nod of the head. From these circumstances I ventured to predict that the spasm would shortly yield.

While this was transacting, Dr. Jones had been called upon; he arrived about twelve o'clock. I told him what had been done; he assented to its propriety, and recommended the addition of wine. By this time, being ten minutes after two, her jaws opened with an effort to vomit. Her pulse was full and the surface warm. I asked her if the skin smarted where the plaster had been applied, and she replied that it did.

She had considerable disorder at her stomach the remainder of the day, for which I tried to prevail upon her to take wine as Dr. Jones had advised, but she said she had such an aversion to it that she could not. Sometime in the afternoon I thought I could perceive that the arterial action began to fail, on which account I exhibited fifty drops of laudanum, but she took it with so much reluctance, that I did not trouble her with any thing more, trusting to the

epispastic to keep up such a degree of arterial action as would prevent the repetition of so dreadful a scene. In this I was not disappointed. I could not perceive any further declension of the pulse, and she continued free from pain and from spasm.

She sat up the greatest part of that afternoon, walked about house the next day, and the third, I believe, went about her business as usual.

It will be seen from this narrative, that within the space of four hours, five hundred and seventy-five drops of liquid laudanum, and fourteen grains of opium were exhibited, the whole being equal to forty-two grains of solid opium. The quantity of vitriolic ether made use of internally and externally was two ounces. The quantity of tincture of cantharides made use of was about the same. The quantity of spirits of volatile alkali, as mentioned in the narrative, was four ounces. Besides these, the stimulus of heat and of a plaster of cantharides.

What quantity of the solid opium was swallowed is uncertain. Some time after it was put into her mouth I observed her in the act of swallowing; yet it is probable that a considerable part of it was ejected in the act of vomiting.

Had I confined my prescriptions to authority to be found in any practical author which I am acquainted with, I am confident I should have lost my patient. I wish not to be understood from this as arrogating merit to myself. I disclaim any. If there is any in the case, let it be ascribed to medical principles inculcated in the writings of Brown, of Darwin, and of Rush. It is to the diffusing of principles there inculcated, that I wish to contribute my mite. It is with pain that I often hear physicians, in the utmost stretch of their candour, saying they are ingenious theories, but they will not do to apply to practice. Whatever is contrary to the tonic power of cold, or the sedative power of opium, is to them incomprehensible and visionary.

If, in cases of trismus, physicians would pay attention to the quantity of irritative motion, or, as I meant to have said, to the quantity of arterial action, and adapt their prescriptions to it, instead of being terrified by locked-jaws, I think we should hear less complaints of the inefficacy of the healing art.

That trismus should so often be a concomitant of wounds that appear to be trivial, is thought by some to be marvellous; but to me it appears still more marvellous that it

should so often happen without any wound at all. That it is ever produced solely by such wounds I disbelieve. My opinion is, that when lock-jaw is a concomitant of wounds, that it is the effect of a concurring debility or defect of irritation, which perhaps would have been sufficient to produce lock-jaw in such constitutions as Darwin has termed excessively voluntary, without the concurrence of a wound. But with most practitioners the state of the system is entirely overlooked; the wound and the locked-jaws are the only circumstances on which his mind dwells, and some secret incomprehensible connection is supposed to exist. Pope says, "Nature well known, no prodigies remain;" accordingly, trismus is belittled by Darwin from a prodigy to an occurrence wholly explicable upon the known laws of animation.

I will endeavour to illustrate what I have said on lock-jaw by something which I have experienced myself. I have often, when exposed to an uncomfortable degree of cold, had corns on my toes to become intolerably painful, which, when I was comfortably warm, I was not sensible of. So it is with wounds, their being more or less painful depends upon the quantity of arterial action, and trismus upon the quantity of pain.

In speaking of Dr. Rush I had no allusion to what he has written on this particular disease, but to general principles taught in later writings of his. It is about four years since I have read the Doctor's works, and my circumstances are such that I cannot own all the books I wish. But if I have not received a wrong impression, the Doctor has treated it upon principles which he has since had the wisdom to reject. After asserting that it is a disease of debility, I think that he speaks of cold bathing as a tonic; but, in my opinion, such a tonic would have been fatal to my patient, although I am confident, from the smallness of her pulse, and the coldness of her skin, that it was a case of debility. I think that the Doctor seems to doubt of opium being a proper remedy, and thinks, that in those cases related of its efficacy, it must have been given in such quantity as to prove stimulant. Does not this imply that the effect of a certain quantity of opium is sedative, and that beyond that quantity it is stimulant? For my part, I am unable to conceive any other difference betwixt a small and a large dose of opium, than that the one is stimulant and the other more so; unless it is given in such quantity as to

induce what Dr. Brown and Dr. Rush have called indirect debility; but this appears to me to be the reverse of what Dr. Rush has attributed to it in his treatise on lock-jaw. Bark and wine are the medicines on which the Doctor seems principally to rely; but these appear to me to be ill adapted to the time in which help is most needed, both from their difficulty of exhibition, and from their tardiness of operation, particularly bark. After the spasm has yielded, no doubt they are excellent medicines to prevent a return; but their virtues are so disproportioned to their bulk, compared to other stimulants, that I think they are not to be preferred whilst the jaws are closed; because a sufficient quantity could not be given with the promptitude which, on many occasions, would be necessary.

What I have said concerning Dr. Rush's treatise on lock-jaw, may possibly prevent some one from imbibing what I conceive to be error in this particular part of his works, which a farther knowledge of them would, I believe, entirely do away. His lectures on animal life contain truths which I conceive to be of so much importance to the physician, that he cannot practise physic in safety and be ignorant of them; or, in his own words, "I believe them to be true, and I know them to be useful." If he has changed his opinions, it is a proof that he has been seeking after truth. Happy would it be for mankind if more of those who practise medicine would do so likewise; but it is a mournful truth that there are some who scarcely entertain a suspicion that the doctrines of Boerhaave have ever been controverted.

REVIEW.

ART. 1. *Observations on the Disease called the Plague, on the Dysentery, the Opthalmy of Egypt, and on the Means of Prevention. With some Remarks on the Yellow Fever of Cadiz, and the Description and Plan of an Hospital for the Reception of Patients affected with Epidemic and Contagious Diseases. By* P. Assalini, *M. D. one of the Chief Surgeons of the Consular Guards, &c. &c. Translated from the French by* Adam Neale, *of the University of Edinburgh, Member of the Royal College of Surgeons of that City, and late Surgeon of the Shropshire Regiment of Militia. To which is added, a Letter concerning the Seasoning or Yellow Fever of the West-Indies. By* George Pinckard, *M. D. &c.* 12mo. pp. 281. *New-York.* T. & J. Swords. 1806.

A RECOMMENDATION of these excellent pieces on the plague and yellow fever, has been given in our Hex. ii. vol. iv. p. 218; and their peculiar value induces us to bring them once more to notice. The French surgeon is one of those who dares to oppose the European prejudice concerning the contagiousness of plague; and the English physician has the boldness to deny that yellow fever is an infectious malady. The latter is the writer whose work was reviewed in the same volume, p. 181.

A fair and instructive opportunity has been given, during the last fourteen years, to investigate the origin and progress of malignant epidemics. Their history in the United States is tolerably well understood; and so much of them is comprehended at least, that no well informed person considers them to be of foreign derivation, but strictly of domestic origin, whether within a ship or a city. But the practice of *quarantining* is still in fashion among us. An Act of Congress is in force on the subject of *quarantines.* The legislature of almost every state in the union has passed one or more statutes relative to the same matter. In some of the Atlantic ports, the name of *lazarettoes* is established; and all the pomp and importance of Mediterranean precaution is adopted.

Of what avail is speculative truth, while it has no influence upon practical affairs? Can the opinions of the sages of the profession be of any service while popular prejudice and legislative authority are arrayed against them? When shall this mistaken language be expunged from the laws, and no longer read in the gazettes?

Verily, the prevalence of error is of wide extent, and of mighty influence in the public regulations of those governments which are called the most enlightened. The Mahometans act with incomparably more good sense on the occurrence of a pestilence than the Christians. And in no part of the world has there been so much terror and desolation about the plague as in the maritime cities within the confines of Christendom. A large part of their calamities arises from their mistaken apprehensions. They have persuaded themselves that a deadly contagion may be brought in ships and merchandize from foreign places. And they have ascribed to this destroying agent qualities of indescribable malignity. Establishments of great expense have been erected, and are still maintained at the public charge. Ships are stopped on suspicion of having the *sparks* of contagion on board. The merchandize with which they are freighted is arrested, lest it should spread the *seeds* of mischief. And the passengers and crew are held in durance, for fear they should carry with them some of the *leaven* of disease. A code of rigorous laws is founded upon the supposed existence of the imaginary venom; and commerce, police and physic are alike the dupes of its fancied terrors.

The rejection of the doctrine of contagion in yellow fever is but the beginning of a reform. The next step is to explode the same mistaken sentiment from the oriental plague. As long as the Marseillian regulations direct the commercial governments of Europe, so long may we foretel will their example influence our own. The only way, therefore, which remains, is to subvert the foundations of these European systems. If it can be proved that they are built upon a deceitful basis, the wise and candid will abandon them. By degrees the wholesome dictates of truth will gain an ascendency in municipal and legislative bodies; and, finally, the two hemispheres will be relieved from the twofold bondage of error and quarantine.

To effect this desirable event, it seemed necessary to attack the evil at its source. Marseilles had been alleged to have suffered more than any other city from imported

plague. And, in consequence thereof, it was provided with a more extensive and efficient safeguard to keep it away. The plague-establishments of that city have been considered as the best that are extant. And governments have deemed themselves worthily engaged in imitating such admirable precedents.

In this state of things it must seem an audacious undertaking in any person to show that the bottom of such a grand superstructure is all false and hollow. And yet such an attempt has been made; and on the authority of Dr. Bertrand himself, the author of the history of that celebrated plague which desolated their city in 1720. The person who has analyzed this mass of evidence is Dr. Mitchill. He has made it appear that the fatal distemper of that year was neither contagious nor imported. This is indeed taking the bull by the horns; but this is the only true mode of managing the controversy. We extract from the introduction to the work (p. 10, & seq.) before us, the statement made by this gentleman, of the sickness of that year in Marseilles.

"Contemplating the alarming stories about the importation of the plague into Christendom, and the expensive establishments that have been made for the purpose of keeping it out; it appears extremely probable all this dread of contagion, and the rigour of quarantines and lazarettoes to guard against it, have, in reality, no better foundation than the equally positive, though delusive tales propagated about our domestic yellow fever. With this view, Bertrand's *Relation Historique de la Peste de Marseille, en* 1720, is worthy of being read. As this is the great authority whence the contagionists derive their arguments, a copy was sought, and fortunately procured from the very place whose calamities are therein related. This book is the more worthy of perusal, because, by establishing the belief of contagion in plague, it gave rise to the famous code of regulations which were published in 1780, under the title of *Reglemens du Bureau de Santè*. And these rules and orders of Marseilles, predicated upon the existence of a most subtil and virulent pestilential contagion, have had a credit given to them almost as extensive and obligatory as the maritime laws of Rhodes and Oleron.

"The narrative of Bertrand is the ground-work of a mighty superstructure. His historical relation serves the same purpose to prove the contagiousness of the plague, and its introduction from Syria into France, as Chisholm's

Essay answers to show that the malignant Pestilential Fever was carried from Guinea to the West-Indies and the United States. The improbable and unfounded nature of the latter account is now generally understood, and candid members of the profession excuse, while they lament such a capital mistake in so sensible and respectable a writer. This discovery naturally prompted an inquiry into the weight and pertinency of the evidence which Bertrand's volume contains. For, if it should be found to be weak or irrelevant, then the vision about contagion vanishes, and all the apparatus to keep it away becomes vain or useless.

"The facts, on the occurrence of the memorable mortality at Marseilles in 1720, as I collect them from Bertrand's book, warrant no such conclusion as he has drawn from them, and may be summarily stated thus: That city had suffered, at different times, nineteen visitations of plague that were important enough to be remembered; this was the twentieth. This year, corn and other necessaries were dearer than common; not so much, says the author, from actual scarcity, as from the remarkable want of money; but which, to all poor people, amounted to the same thing.

"The season is described as not being remarkably different from common years. In the course of June the inhabitants became sickly. The disease began among sailors and indigent people near the harbour, and gradually extended the circle of its action. The people and their magistrates grew uneasy, and expressed different opinions about it, and, on referring it to the members of the medical profession, they, as usual, also differed in opinion. One class of them expressed their solemn conviction, that it neither proceeded from a vitiated atmosphere nor a scantiness of food, but was derived from contagion imported from Sidon, in Syria, on board a ship which sailed thence January 31, and arrived on the 25th of May, with a clean bill of health, and a sickly crew, at Marseilles. Mr. Bertrand, who is the chief of this sect, says, the vessel also touched at Tripoli and Cyprus, and brought certificates of health from both those places. The Captain, during the voyage, had put into Leghorn, on account of the wretched and dying condition of his crew, and had received a certificate from a physician and surgeon there, purporting that they died of a malignant pestilential fever. Several other vessels arrived from the same ports about the last of May and in the beginning of June, bringing foul bills, there being suspicions and appearances of

plague; but none of their crews are stated to have been unhealthy. On the other hand, there was a numerous and intelligent body that contended in favour of its local origin at home. These ascribed the endemic to atmospheric distemperature, vile and scanty food, and to fear and the depressing passions. This side of the question was maintained strenuously in numerous publications, by Mr. Deidier, Professor Maille of Capors, Dr. Boyer of Toulon, and Professors Chicoyneau and Verny of Montpellier. All those were men of high character, and, except one, were eye witnesses of the distemper; beheld it in its worst forms, and deliberately spoke and printed their conviction, that it was an ordinary malignant disease, and by no means contagious.

"The points of importation and domestic origin were as fiercely disputed at that time as they have ever been since. Mr. Bertrand, Mr. Pons, Mr. Peysonnel, brother Victorin, and the other persons who were contagionists, ascribed all the mischief to the arrival of the vessels from the Levant, and satisfied themselves of the landing of the contagion at the lazaretto; whence, after having multiplied and recruited itself, it slipped insensibly into the neighbouring part of the town, crept insidiously from house to house, and from street to street, until it gained possession of the whole; and, finally, glided by the same secret and silent advances into the adjoining country. Their opponents considered all this to be prejudice, mistake, and delusion. There was no proof, they said, that contagion existed in the Syrian and Cyprian ports when the accused ship left them. If contagion had existed, there was no evidence of its having been taken on board. In a voyage of nearly three months duration, nothing was more common than the existence of sickness among a crew. There was no necessity of charging such a sickness to the ports whence they sailed; for it was much more probable that it arose on shipboard, and was of strictly local origin there. The occurrence of fevers, and of death during the passage, had nothing to do with the places whence they took their last departure. Persons at sea had no more security against sickness and mortality than when on shore, and therefore might, in the nature of things, become infirm, and even end their days, from causes arising within the vessel itself. So, if a ship had arrived in a sickly and unclean condition at any city, it did not follow that her unhealthiness and filth must be spread far and wide among the inhabitants. Independent of all these consider-

ations, on examining the facts it was found, that this dangerous disease had been progressing, by regular steps, among the lower class of people; that it resembled the home-bred malignant distemper of 1709 and 1710; that it was connected with the wretchedness and famished condition of the poorer inhabitants, who compose the great body of society; and, in short, that the populace, starving upon meagre and damaged food, became sickly of course from the common necessity of the case. The most decisive proof was adduced, that before the arrival of the suspected ship, to wit, early in May, and in April, and even during part of the preceding year, 1719, diseases, accompanied with buboes, parotids, and carbuncles, had appeared. The sudden deaths of the porters were not owing to a blast of pestilential contagion, inhaled from the bales of goods they were landing, but to debility and impoverishment consequent upon bad living, and to the sudden and total failure of their strength when applied to carry a load. The attacks were in situations so remote from each other, and the patients so utterly free from all communication, either with one another or with the ship and her contents, that the distemper was truly endemic in its origin, uncontagious in its nature, and as much a domestic malady as any other that ever afflicted the inhabitants.

"While this severe, though necessary work was going on, of trimming off the luxuriance and overgrowth of their population, the Marseillians bore it with the patience with which mankind generally endure misfortunes. Matters went on from bad to worse, until near the end of July, when an opinion was propagated that the disorder among them was the true Asiatic plague. This was at first violently opposed by the multitude. The authors of it were reviled and insulted. A more wilful and pernicious falsehood, they declared, had never been propagated to the injury of the Burghers. But although these were incredulous, there were, at length, persons enough to give full credit to the story. The rumour that the plague had been brought from the Turkish dominions, was propagated far and wide. It gained believers almost in every place to which it extended; and in a very short time this unhappy city was put under an interdict, and cut off from the intercourse of society, lest the plague, by which it was desolated, should overwhelm the adjacent settlements, villages and towns by its contagion.

" As soon as the disease was declared to be the *plague*, a series of new proceedings and sorrows began, infinitely more tragical than all that had happened before. The surrounding places refused to bring supplies to market. The parliament indeed forbade the intercourse under severe penalties. Barricades were ordered for the purpose of keeping them in. They were prohibited going into the country for safety, or even to buy provisions. The immediate consequence was an extreme and general failure of food. The bakers were destitute of corn and meal. As early as the third of August the bread fell short, and the multitude marched from one street to another, insulting the bakers at their houses. They were agitated by rage and tumult. At length, to prevent immediate famine, two markets were established on the great avenues, six miles from the city, and another on the sea-side. These were fortified by double barriers, officers and guards, to allow sales, but to prevent communications. Thus were these ill-fated people surrounded, and, in great numbers, literally starved to death.

" For, though these supplies relieved the scarcity in some measure, there were multitudes who received no benefit from them. They were two leagues from the city. The poor, the sick, and the helpless could not travel so far. Many of them indeed were unable to buy, had the market been held at its accustomed place, or at their own doors. The price of every thing immediately rose. Labour became dearer than ever was known. The stores of wine, so necessary an article of diet to the French, were nearly exhausted. Butcher's meat was very difficult to procure upon any terms. In short, famine became more formidable than the plague itself. The original scarcity, bad as it was, did not bear a comparison with the hunger, sufferings, and mortality that resulted from these ill-judged regulations. The calamity of 1720 ought to be denominated the famine, rather than the plague of Marseilles: for clearly more appear to have been starved than to have died in any other way.

" The labouring classes, and those who do the work of society for hire, perished first: and the greater part of them having died, and there being none to replace them, it was impossible to get work done, even for money. A large proportion of male and female servants, waiters, and laqueys also famished at an early period; and it was oftentimes quite out of the power of the most wealthy persons to pro-

cure domestics to perform the ordinary service of life, by the highest wages. The survivors were obliged to perform their own labour and attendance. In the progress of the season, many of the butchers, bakers, and fishermen yielded their lives to the pressure of the common calamity. The distress of this was sorely felt by all the individuals yet alive. Of these, the remaining poor were starving for want of their accustomed employment; and the rich, because they could not exchange their money for common necessaries. The houses, throughout all their apartments and recesses, were strewed with the dying and the dead. All the streets were covered with carcases. The gravediggers had disappeared. Undertakers and sextons were not to be found. About a thousand corpses were daily thrown into the streets to putrify, until, at length, a passenger could scarcely walk without treading on them. In some places he was obliged to tread on them. In the public walks, and before the church doors, they were piled up in large heaps, men, women, and children. Persons of all ages and conditions were undergoing the process of corruption, as they overspread the pavements, and filling the atmosphere with their noxious exhalations. And this domestic source of pestilential effluvia was itself enough, without other agents, to have depopulated the city. To augment their distresses, an opinion was started, that the contagion was carried from one person and place to another by dogs. Instantly a war of extermination was declared against these poor animals, and the land and the water stank with the septic fluids proceeding from thousands of them that were killed. This shocking condition of things continued until toward the end of September. And, considering these concurring causes of mischief, one is apt to wonder that the mortality was limited to fifty thousand. It might be reasonably expected, that under such circumstances, in a population of eighty thousand, a much larger proportion would have been destroyed.

"Finally, the surviving confessors, physicians and surgeons, exhausted and discouraged by all they had suffered, and by all that they feared, ceased at once to administer their services, and abandoned the wretches to their fate. When these men withdrew their attendance, and sought their own safety by flight, the misfortunes of the miserable inhabitants were wrought up to the highest pitch. They had long endured the depressing operation of fear. In

many the apprehension of danger had been changed into ghastly terror. But now the small remains of fortitude forsook them, and they sunk under the pressure of dejection and despair. Their minds and bodies became the prey of a debility which ended in languor and death, or which predisposed them to receive morbid impressions that they might otherwise have repelled. The dread of the plague, when augmented by the horror of desertion by all who could administer help or comfort, was a fatal aggravation of their woes.

"These woes, however, had some alleviation toward the termination of the calamity. For, during the season of Lent, the good Bishop, the celebrated Castelmoron, who, by an ordinance of 24th February, dispensed with the rule of rigid abstinence, and permitted the use of meat four times a week, substituted, instead of fasting, the recital of certian particular prayers. On the 4th of March, solemn application was made in the Jesuits' Chapel, to St. Francis Xavier, for his intercession with Heaven to arrest the mischief; and on the 21st a similar service was performed to the sacred heart of Jesus, in the Capuchin's Church, for the same purpose, and continued in both for nine or ten days. Altars were erected in various public places, and mass celebrated there. Even the ancient custom of carrying the viaticum to the sick in every parish was permitted during the fortnight of Easter. In like manner a procession had been formed on the 31st of December, by the Bishop carrying the holy sacraments, attended by the surviving clergy, around the ramparts. He pronounced the benediction at the gates of the town, and in the ditches where the dead had been deposited, to implore the mercy of the Lord upon those unhappy defuncts whom the calamity had deprived of ecclesiastical sepulture. And, on the 15th of the preceding November, the same pious prelate had walked bare-footed, with a torch in his hand, to an altar which had been erected in the park, and after having celebrated mass, and given the consolation of his advice and exhortation to the people, he ascended to the top of the steeple in the parish Church of Accoules, and pronounced a blessing upon the whole city at once, while the ringing of bells, and the firing of cannon notified the inhabitants to join their prayers to those of their Bishop. It was seriously agitated between two of the great churches, whether the relics of the saints ought not to be brought forth to view; but, owing to a

difficulty in settling certain points of ceremony and etiquette, these sacred treasures were not exhibited.

"This accident, therefore, partook much more of a famine than a pestilence, since the true causes were, 1. Scantiness and badness of food; 2. An unhealthy season among the poor and labouring orders; 3. The consternation on their distemper being proclaimed the true Turkish plague; 4. The starving condition to which the inhabitants were further reduced by the regulations of the police; 5. The envenomed quality of the atmosphere, from the rotten bodies of unburied men and dogs; 6. The prostration and annihilation of animal power by grief, despondency, and the most depressing passions. And still, notwithstanding all these circumstances and occurrences, enough in all sober consideration to desolate a city, it has been the fashion, ever since Bertrand's book was published, to quote it as the highest authority in favour of an imported contagion that stirred up such complicated and unspeakable mischief; mischief which derived infinitely more of its fatality from bad management, than its own inherent malignity. This author has written an elaborate and sensible account of the sickness and its accompaniments. He is as impartial as can be expected in a person who is a strong and zealous advocate for contagion and importation. On the occurrence of a more than common sickness at Marseilles, it became a subject of rational inquiry to discover its cause. Mr. Bertrand adopted the belief of its introduction from a foreign port, and patched up a story about contagion brought from Sidon and Tripoli. I say, patched up a story; because the existence of such contagion has never been proved by the evidence of one of the senses. The contagion is a mere conceit of the mind; and all reasoning upon such a visionary and fancied agent can be but hypothesis, and have no better claim to our assent then the fluid of magnetism and the ether of gravitation. Upon such a conjecture, all the public proceedings were founded; an assumption not near so worthy of our assent, as if it had been said that the invisible angel of destruction had literally and bodily descended, sword in hand, to execute a heavy judgment of his Lord.

"On reading this famous book, and comparing and weighing the evidence it contains, I am entirely convinced that the importing party have failed to support their assertions by, I will not say logical or legal proof, but even by that evidence which is fit to convince a plain understanding

here in North-America, after a lapse of more than four-score years.

"Are we then to give credit to the phantom, which deceived the people of France to the destruction of the Marseillians, and misled their intelligent historian himself? By no means. Let us rather sift the whole testimony, and, disregarding the erroneous conclusions of our predecessors, decide upon the facts for ourselves. If we do so, we shall find the plague of Marseilles, which has been quoted and dwelt upon as the clearest case of imported contagion that ever existed, to be unsupported by the necessary evidence, even on the allegations of its warmest advocates."

ART. 2. *The History of Canada, from its first Discovery; comprehending an Account of the original Establishment of the Colony of Louisiana. By* George Heriot, *Esq. Deputy Post-Master-General of British America, &c.* 8vo. pp. 616. vol. i. *London.* Longman & Rees. 1804.

THE people of the United States, particularly of New-York, Vermont, Pennsylvania, Ohio and Michigan, which lie contiguous to Canada, and were even deemed formerly to be included partially within its limits, will doubtless feel an interest in the contents of this volume. It contains the history of the settlements along the river St. Lawrence, and the lakes on their northern frontiers; and of the expeditions made from time to time by the French adventurers, of the discoveries they made, and of the wars they waged, as well with the native Iroquois, as with the British colonists. So many of the events occurred on lake Champlain, and at the different stations southward of the lakes and their outlet to the ocean, that *a considerable portion of the work is in fact filled with the historical materials of New-York.*

Mr. Heriot does not claim the merit of an original writer. He has taken his information chiefly from *Charlevoix*'s well known History of New-France. And has aided his inquiries by consulting the voyages of *Champlain, La Heuton, Le Clerc*, and *La Patherie*. He quotes also that magazine of information, "the edifying and curious letters," and the general history of voyages. It is remarkable that he never quotes our Colden's History of the five Indian Nations;

although the quarrels and negociations with that powerful confederacy of savages form a large section of his work.

The author has treated of two portions of history, which, although generally considered distinct, ought, nevertheless, to be viewed in connection. We mean the history of the settlements on the two great streams of the St. Lawrence and the Missisippi; the former constituting the province of Canada, and the latter of Louisiana. By tracing the progress of French enterprize along the course of these two rivers and the intervening waters, the reader discovers the whole train of those proceedings by which the British colonies and plantations were threatened in their rear, and alarmed by adverse possessions and exterminating hostilities. The chain of forts and stations established through the interior country, and connecting two of the greatest rivers in North-America, roused the British settlers and their parent country to such resistance, that, after a series of bloody campaigns, the power of France, both in Canada and Louisiana, was annihilated, and the former of the two ceded to England, while the latter was granted to Spain. The present volume contains little more than the geographical discoveries and incipient establishments, which, in process of time, usurped dominion over the interior country, from lake George to Pittsburgh, and had set up a pretension as far as the summits of the mountains or dividing ridges, adown whose declivities the waters descend to the St. Lawrence on the one side, and to the Missisippi on the other. By this construction, the western and northern limits of the British settlements were to have been restricted to the strip of country which stretches from the north-east to the south-west, between the Alleghany mountains and the Atlantic ocean. The subtle and ambitious policy which led to these memorable projects is an important portion of American history. Mr. H. however, does not delineate the whole of these transactions, for the present part of his work goes no further than the year 1731. Mr. Crozat had surrendered to the crown his exclusive patent for Louisiana; and the *Company of the West*, under Mr. Law, was formed immediately after, embracing a commercial monopoly both of Canada and Louisiana; and, in 1717, the company carried their chartered powers into operation. So many difficulties and disasters attended their administration, that, in 1731, they made a voluntary surrender of their patent to the king,

who immediately appointed a governor, and held it as a royal domain.

The bay and river of St. Lawrence were explored by Cartier, in 1534. Quebec was founded by Champlain, in 1608. The Jesuits founded a college there in 1635. The nunnery of the Ursulines was established in 1639. Montreal was settled under a grant to the religious order of St. Sulpicius in the same year. After these events the settlement of New-York was begun in 1664, at the mouth of the river *Manhatte*, since called the *North* and the *Hudson*. This was considered a disastrous event to the Canadian colony. Niagara fort was built in 1687. Great commotions between the French and English, with their respective colonists and Indian allies, on lakes George and Champlain in 1709. There was a cessation of hostilities in consequence of the treaty of Utrecht in 1712. During the same year fort Oswego was built by the English, and Niagara re-established by the French.

These and other events are detailed in the first eight books of the eleven into which the author has divided his history. Among the more remarkable are the wars with the Iroquois, and occasionally with some other native inhabitants.

The ninth book opens with the account of De la Salle's adventure from France to discover the mouth of the Mississippi, of his falling to leeward of his place of destination and landing near the Bay of St. Bernard, and of his unhappy death as he was traversing the wilderness thence to the Illinois colony, in 1687. Mr. Ibberville's better fortune in finding and entering that river in 1699, is related in the tenth book; as are likewise the efforts made to establish European settlements as high as Natchez. The characters of the Indians who were distinguished by that name, and of the Illinois tribes further up the river, are also given. It is remarkable that one of the names of the Missisippi was St. Louis; the capital of the Illinois settlement was called St. Louis; and the adjoining regions on both sides, to a vast but indefinite extent, were distinguished as Louisiana: all in honour of the monarchy of France. In the eleventh and last book are contained the further proceedings in the colony itself; its situation in respect to Mexico on the one side, and Canada on the other; the capture of Pensacola from the Spaniards, by whom that place was first

colonized; the destruction and dispersion of the ferocious tribe of Natchez; and the other leading events until the retrocession by the company of the Indies to their monarch of their sovereignty over Louisiana and the Illinois as before stated.

Such is the outline of Mr. Heriot's performance. In the defect of an entire history of New-York; in addition to the limited publications of Smith and Colden; and until the public shall be favoured with the learned and extensive researches which the Rev. Dr. Samuel Miller is now making into the annals of our state; this volume will be perused with interest by New-Yorkers.

Having given this recital, we think it fair to lay before our readers a specimen of the work. For this purpose we select his account of the great earthquake in 1663.

"On the 5th of February, about half past four in the evening, a great noise was heard nearly at the same time throughout the whole extent of Canada. That noise seems to have been the effect of a sudden vibration of the air agitated in all directions. It appeared as if the houses were on fire, and the inhabitants, in order to avoid its effects, immediately ran out of doors. But their astonishment was increased when they saw the buildings shaken with the greatest violence, and the roofs disposed to fall sometimes on one side, sometimes on the other. The doors opened of themselves, and shut again with a great crash. All the bells were sounding, although no person touched them. The pallisades of the fences seemed to bound out of their places; the walls were rent; the planks of the floor separated, and again sprung together. The dogs answered these previous tokens of a general disorder of nature by lamentable howlings. The other animals sent forth the most terrific groans and cries, and, by a natural instinct, extended their legs to prevent them from falling. The surface of the earth was moved like an agitated sea. The trees were thrown against each other, and many, torn up by the roots, were tossed to a considerable distance.

"Sounds of every description were then heard; at one time like the fury of a sea which had overflowed its barriers, at another like a multitude of carriages rolling over a pavement, and again like mountains of rock or marble opening their bowels, and breaking into pieces with a tremendous roar. Thick clouds of dust, which at the same time

arose, were taken for smoke, and for the symptoms of an universal conflagration.

" The consternation became so general, that not only men, but the animals appeared as if struck with thunder; they ran in every quarter without a knowledge of their course, and wherever they went they encountered the danger they wished to avoid. The cries of children, the lamentations of women, the alternate successions of fire and darkness in the atmosphere, all combined to aggravate the evils of a dire calamity which subverts every thing by the excruciating tortures of the imagination, distressed and confounded, and losing, in the contemplation of this general confusion, the means of self-preservation.

" The ice which covered the St. Lawrence and the other rivers, broke into pieces, which crashed against each other; large bodies of ice were thrown up into the air, and from the place which they had quitted a quantity of sand, and slime, and water spouted up. The sources of several springs and little rivers became dry; the waters of others were impregnated with sulphur. At some times the waters appeared red, at others of a yellowish cast; those of the St. Lawrence became white from Quebec to Tadoussac, a space of thirty leagues: the quantity of matter necessary to impregnate so vast a body of waters must have been prodigious. In the mean time the atmosphere continued to exhibit the most awful phenomena; an incessant rushing noise was heard, and the fires assumed every species of form. The most plaintive voices augmented the general terror and alarm. Porpusses and sea-cows were heard howling in the water at Three Rivers, where none of these fishes had ever before been found; and the noise which they sent forth resembled not that of any known animal.

" Over the whole extent of three hundred leagues from east to west, and one hundred and fifty from south to north, the earth, the rivers, and coasts of the ocean experienced, for a considerable time, although at intervals, the most dreadful agitation.

" The first shock continued without intermission for half an hour: about eight o'clock in the evening there came a second, no less violent than the first, and in the space of half an hour were two others. During the night were reckoned thirty shocks.

" New-England and New-Holland were no more ex-

empted from its effects than the country of New-France, and over this tract of land and rivers, when the violence of the shocks had abated, an intermitting movement was felt every where at the same period."

We give, also, a short quotation, to show that malignant fevers were the consequences of bad provisions, constant fatigue, depressed spirits, and close besieging, among the French troops at Niagara, in 1687.

" M. de Dénonville had ever much at heart the construction of a fort at Niagara, and the opportunity which now presented itself for executing this design was too favourable not to be embraced. The fort was finished, and the Chevalier de la Troye was left there with a hundred men for its protection. Unfortunately, however, a malady was soon introduced into the garrison which cut off nearly the whole, and this important post was abandoned and destroyed.

" Before the establishment of this post, a resolution should have been taken to maintain it, notwithstanding the losses and difficulties that might occur. From the want of having provided resources sufficient for this purpose, the French exposed themselves to the contempt of the savages. The disease which caused the loss of the troops, and of the officer who commanded them, originated not only from the bad state of their provisions, but from the incessant fatigue which they underwent from being harassed by the enemy. They were kept blockaded in such a manner that they could not procure the smallest refreshment either from the chace or from fishing, although the country abounded with animals and birds, and the river with excellent fish."

We gratify them further with a quotation from book x. p. 502, in which the ancient nation of the Natchez is described.

" This nation of the Natchez inhabited one of the finest climates, and one of the most fertile countries in the universe: they were the only people on that part of the continent who appeared to have a regular form of religion. Their mode of worship resembled in certain points that of the ancient Romans. They had a temple filled with idols, consisting of different figures of men and animals, for which they showed the most profound veneration. The form of their temple resembled a large oven of earth, being a hundred feet in circumference: the entrance was by a small door of four feet in height and three in breadth: the edifice had not any window. The vault was covered with three rows of mats, placed one upon the other, to prevent the rain

from spoiling the masonry. Above, and on the outside, were three wooden figures of eagles, painted red, yellow, and white. Before the door there was a kind of shed, with a second door, where the guardian of the temple was lodged: the whole was surrounded by a fence of pallisades, on which were exposed the scalps of all the heads which their warriors had brought from the various combats in which they had been engaged with the enemies of their nation.

"In the interior of the temple there were small shelves placed at a certain distance from each other, on which were set baskets of cane of an oval figure, containing the bones of their ancient chiefs; and beside these, those of the victims who caused themselves to be strangled, that they might follow their masters into the other world. Another separate shelf contained several baskets well painted, in which their idols were kept: these consisted of figures of men and women made of stone and burnt clay; the heads and tails of uncommon serpents, stuffed owls, pieces of crystals, and jaws and teeth of large fish. They had, in 1699, a bottle and the foot of a wine glass, which they preserved as articles of great value.

"They took care to maintain in this temple a perpetual fire, and great attention was bestowed to prevent its rising to a flame: for this purpose they used only dry and hard woods. The ancients were obliged to carry each in his turn a large junk of wood to the entrance, or to the pallisade. The number of guardians of the temple was fixed, and they served each three months. He who was on duty remained like a centinel in the shed, from whence he watched the fire; this was nourished by three large pieces of wood, whose inner extremities only were allowed to burn at the same time, and which, to avoid flaming, were never placed one upon the other.

"Of all the females of the nation, the sisters of the great chief only were permitted to enter the temple: this privilege was withheld from all the others, as well as from the lower ranks of people, even when they brought food for the manes of their relations, whose bones reposed in the temple. The viands were given to the guardian, who carried them to the side of the basket where the bones of the dead were deposited: this ceremony endured but for a moon. The viands were afterwards placed on the pallisades of the court, and were abandoned to the wild animals and birds.

"The sun was the principal object of veneration among that people, as they conceived that nothing can be superior to this luminary: nothing, likewise, appeared more worthy of their homage; and it was for this reason that the grand chief of the nation, who knew of no person upon earth superior to himself, assumed the quality of brother to the sun. The credulity of the people maintained him in the despotic authority with which he was invested. And, in order to preserve it, a mound of earth was raised, on which they built his cabin, of the same construction with the temple. The door was exposed to the east. Every morning the great chief honoured with his presence the rising of his elder brother, and as soon as he appeared above the horizon, saluted him by a repetition of howlings; he then gave orders that his pipe should be lighted, made him an offering of the three first mouthfuls of smoke which he drew, and raising his hands above his head, and turning at the same time from east to west, pointed out to him the route he was to pursue in his diurnal course.

"There were in his cabin several beds on the left of the entrance, but on the right was the bed of the grand chief, adorned with different painted figures. This bed consisted only of a palliass composed of canes and reeds, with a square piece of wood which served him as a pillow. In the centre of the cabin there was a small boundary: no person was allowed to approach the bed without making the circuit of that enclosure. They who entered saluted with a howl, and advanced to the extremity of the cabin, without casting their eyes towards the side where the grand chief was; they afterwards gave a fresh salute by lifting the arms above the head and howling three times. If they were persons whom the chief regarded, he answered by a faint sigh, and made them a sign to be seated: he was thanked for his attention by a new howl. At every question which the chief made they howled once before they returned an answer, and when they took leave of him they drew out one continued howl until they retired from his presence.

"When the grand chief died, his cabin was demolished, a new mound of earth was raised, and another cabin was erected for him who was to fill his dignity, who never lodged in that of his predecessor. The ancients were the legislators and judges for the rest of the people: one of the principal laws was to have a sovereign respect for the grand chief, as brother of the sun, and master of the temple.

They believed in the immortality of the soul: when they quitted the present state of being, they went, they said, to inhabit another, there to receive recompense or punishment. The rewards which they promised themselves consisted principally in good living, and the chastisement in the privation of every species of enjoyment. They thus believed, that such as were faithful observers of the laws, would be conducted to a region of delight, where all sorts of the most exquisite viands would be supplied them in abundance; that their days would pass in pleasure and tranquillity, in the midst of feasts, of dances, and of women, and that they should taste of every pleasure imaginable. That, on the contrary, the transgressors of the laws would be cast upon lands unfertile and covered with water, which would produce no kind of grain, and that they should be exposed naked to the torturing bites of musquitoes: that all the nations should make war against them, and that they should never eat but of the flesh of crocodiles and of the worst species of fish.

"These people implicitly obeyed the will of their chief: they regarded him as the absolute master, not only of their property, but of their life, and not one among them dared to refuse his head when he chose to demand it. For whatever labour he imposed upon them, it was forbidden them to require any recompense. The French, who often had occasion for hunters or rowers for their long voyages, addressed themselves to the grand chief alone. It was he who supplied all the men they wanted, and received payment without giving any part to those unhappy people, who had not even the privilege of complaining. One of the principal articles of their religion, particularly for the attendants of the grand chief, was to honour his obsequies by dying with him, that they might serve him in the next world. They blindly submitted with cheerfulness to this law, in the vain persuasion that in the company of their chief they should enjoy the greatest happiness.

"To convey an idea of this sanguinary ceremony, it must be announced, that so soon as a presumptive heir to the grand chief was born, every family where there was an infant at the breast gave him the homage of that child. Out of these children a certain number was chosen, destined to the service of the young prince; and when they became of a competent age, an employment was given them conformable to their capacities: some spent their lives in the chace,

or in fishing, or for the service of his table; others were occupied in agriculture; others only as followers or attendants: when he died, all these servants sacrificed themselves with joy to follow their dear master. They on this occasion assumed their finest dress, and went together to the ground opposite the temple, where all the people of the village also assembled. After having danced and sung for a considerable time, they passed around their neck a cord with a running knot, and soon after the ministers destined for this kind of execution came to strangle them, recommending to them to rejoin their master, and to resume in the other world employments yet more honourable than those they exercised in the present.

"The principal domestics of the grand chief having been strangled in this manner, their bones were stripped and left to dry for two months in a kind of tomb; after which they were taken out to be shut up in the baskets, and placed in the temple beside those of their master. The other servants who had been strangled were carried home by their relations, and interred with their arms and clothes.

"The same ceremony was likewise observed on the death of the brothers and sisters of the grand chief. Women were always strangled to follow them, provided they had not a child at the breast. There were, however, instances of their delivering their children to nurses, or of putting them to death themselves, that they might not forego the privilege of being sacrificed according to the usual ceremonies ordained by the law.

"The government was hereditary; but the sons of the reigning chief did not succeed their father; the sons of his sister, the first princess of the blood, were his declared successors. This policy was founded on the knowledge which they had of the libertinism of their wives. They were not certain, said they, that the children of their wives were of the blood royal; whereas the sons of the sister of the grand chief were at least so by the side of their mother.

"The princesses of the blood never espoused men of an obscure family; they had only one husband, but they were at liberty to repudiate him whenever they pleased, and to make choice of another among those of the nation, provided there was no alliance between them. If the husband was guilty of infidelity, the princess immediately caused him to be put to death: she was not subject to the same law, for she could enjoy as many lovers as she pleased, without the

husband being suffered to complain. He conducted himself in the presence of his wife with the greatest respect; he did not eat with her; he saluted her by howling, as was practised by her domestics. The only satisfaction he enjoyed was that of being exempt from labour, and of having authority over those who served the princess.

" Formerly the nation of the Natchez was considerable; sixty villages were reckoned, and eight hundred suns or princes: in 1730 it was reduced to six small villages and eleven suns. In each of these villages there was a temple, where fire was continually kept up, as in that of the grand chief, whom all the other suns obeyed.

" It was the grand chief who had the patronage of all the employments in his state, the principal of which were, the two chiefs of war, the two masters of ceremony for worship which was rendered in the temple, the two officers who presided at the other ceremonies which were observed when strangers came to treat for peace; four others, whose charge it was to direct the feasts with which they publicly regaled the nation, and strangers who came to visit them; the officers who inspected public works. All these ministers who executed the will of the grand chief, were respected and obeyed, in the same manner as if their orders had been given by himself in person.

" Every year the people assembled to sow an immense field with Indian corn, beans, pumpkins, and melons. They came together in the same manner for the harvest. A large cabin situated in a beautiful meadow, was destined to contain the produce of the fields. Towards the end of July the people every year collected, by order of the grand chief, to assist at a great festival which he gave. This festival lasted three days and three nights; each contributed towards it whatever he could furnish; some brought game, others brought fish. The entertainment consisted of almost continual dancing; the grand chief and his sister were seated in a lodge, elevated and covered with foliage, from whence they contemplated the joy of their subjects: the princes, the princesses, and they who by their office were of distinguished rank, ranged themselves near the chief, to whom they marked their submission and respect by an infinity of ceremonies. The grand chief and his sister made their entry into the place of the assembly on a litter carried by eight of the tallest men: the chief held in his hand a sceptre adorned with feathers; all the people danced and sung

around him, in token of the public joy. On the last day of the festival he commanded all his subjects to approach him, and delivered to them a long harangue, in which he exhorted them to fulfil the duties of religion: he recommended them above all things to preserve a great veneration for the spirits who resided in the temple, and to give good instructions to their children. If any one had signalized himself by some zealous action, he gave him public praise. A circumstance of that nature took place in the year 1702. The thunder having fallen on the temple, and having reduced it to ashes, seven or eight women threw their infants into the flames to appease the wrath of heaven. The grand chief styled these women heroines, and bestowed strong encomiums on them for the courage which had prompted them to make a sacrifice of that which was most dear to them: he concluded his panegyric by exhorting the other women to imitate, in any similar conjuncture, so brilliant an example."

On the whole, we are so well pleased with this piece of Canadian history, that we shall be pleased to see the sequel, in which the interesting series of events from 1731 to our own time, shall be historically and impartially stated.

ART. 3. *Directions for the Transplantation and Management of young Thorn, or other Hedge Plants, preparative to their being set in Hedges: with some practical Observations on the Method of plain Hedging. By* Thomas Main. 8vo. pp. 38. *Washington.* Way. 1807.

PRACTICAL directions on an important agricultural subject, are detailed in this small though valuable publication. The increasing scarcity of wood in many parts of the country, not only adds to the price of fuel, but of fencing stuff. Through the latter it adds considerably to the dearness of cultivated land. Every attempt, therefore, to substitute live-fences instead of posts and rails is worthy of notice. The rearing of hedges is one of the most important improvements remaining to be made in rural economy.

Since the general and inexplicable death of the *privet* hedges which were growing extensively in several of the older settlements about forty years ago, the planting of live-fences has very much declined. On the east end of Long-

Island, the *thorn* hedges which beautified the towns of East-Hampton and South-Hampton, have been destroyed at a more recent day by the ravages of insects, and have affected the farmers with discouragement and gloom. But the large and thriving *thorn* which forms the hedges in the neighbourhood of Newcastle, in Delaware, still holds out encouragement to the cultivator, and forbids him to despond.

The writer of the tract before us has undertaken to revive the spirit of hedging. This he does by the best of all methods, the raising of suitable plants, and instructing how to treat them. His nursery is near Georgetown, on the bank of the Potomac. After turning his attention long to this interesting object, he became satisfied that native shrubs were better for hedges than plants of foreign growth or derivation. He therefore sought diligently among the indigenous vegetables, and found that a species of hawthorn, growing spontaneously in Maryland, exceeded all others. Upon trial he convinced himself that it merited a preference. He has not given its botanical name or character, but says "it is one of the several maple-leaved sorts, to which he has given the name of the American hedge-thorn." And to the cultivation of this species his labours have been principally directed for several years.

Mr. Main has relinquished the cultivation of *transplanted* hedge-plants; and proposes for the future to furnish *seedlings only*. These, when in a growing state, and fit for transplanting, take up so little room, that from ten to fifteen thousands may be conveniently deposited in a box that any labouring man can lift with ease. And they are capable of being transported to any distance, when packed by the cultivator according to order.

The chief directions relate to the treatment of these young American haw or hedge-thorns when they are sent out for transplanting. They have the appearance of that minuteness and caution which is derived from practice. The mode of nursing, watering, and transplanting the plants, of setting them into hedges, and of protecting, mending, and trimming them afterward until they are full-grown, are displayed at sufficient length. And as they are the result of long experience on one of our hardy indigenous vegetables, we consider them very interesting both to the man who cultivates the earth for profit, and him that improves it for pleasure.

Although the AMERICAN HAWTHORN has attracted a

larger share of this industrious man's attention than any other plant, he has, however, not confined his attention to it exclusively. For the *Pyracantha* or Evergreen thorn grows in his nursery, and though an exotic, seems to be naturalized and well adapted for live fences. This may be propagated by layers; and its appearance, when grown, is very beautiful. He also cultivates the Honey-locust or *Gleditsia*, which he recommends for further experiment. He thinks Holly, a species of native Hex, would be worthy of trial in soils too sandy for the hawthorn to succeed; and advises hedges of *common red-cedar* in situations too barren and bleak for any of the preceding plants to thrive.

From this general account of the publication, our readers will form a tolerable idea of its contents; and if they entertain a desire to beautify and improve their estates by the use of quicksets, we would advise them to peruse the original for a variety of valuable information, which it was not convenient for us to extract.

We shall just observe, in concluding this article, that there is no mention made of the manner of procuring and preserving the seeds, and of the means to be pursued for making them vegetate; the obvious reason of which is, that it is the author's design to bring his plants forward to the *seedling* state himself, and merely to offer advice to those who buy them how they are to be treated afterward.

ART. 4. *A Treatise on Malignant Intermittents. By* J. L. Alibert, *Physician to the Hospital of St. Louis, &c. &c. Third Edition, revised, corrected, and enlarged. Translated from the French, with an introductory Discourse, occasional Notes, and an Appendix. By* Charles Caldwell, *M. D. &c.* 8vo. pp. 379. *Philadelphia.* Fry & Kammerer. 1807.

An Essay on the Pestilential or Yellow Fever, as it prevailed in Philadelphia in the Year 1805. *By* Charles Caldwell, *M. D.*

(Continued from p. 54.)

WE now proceed to the consideration of the appendix to this volume, containing an Essay by Dr. Caldwell on the pestilential or yellow fever, as it prevailed in Philadelphia in 1805.

This Appendix forms a large portion, nearly one half of

the whole volume, and contains matter of great value and importance. In the introductory part of it, Dr. C. traces the history of pestilence to the earliest records, notices the accounts of it which are found in the scriptures of the Old Testament, and finds that Moses did not consider it as a contagious disease. He then adverts to the description of it given by Hippocrates, who seems likewise to have received no impression of its contagiousness. The other physicians of ancient Greece mention it in a similar manner, and appear always to consider it merely as the endemic of their country. He proves incontestibly that yellow fever was well known to the physicians of ancient Rome; but was never supposed by them to have been introduced into Italy from any foreign country. He likewise proves that it is not a new disease in the West-Indies, and presents evidence which establishes beyond contradiction the fact of its prevalence in those islands ever since the discovery of the new world by Columbus. And he further offers satisfactory proof, that the extraordinary prevalence of that disease in the West-Indies during the operations of war, is to be ascribed merely to the greater influx of strangers on such occasions into those unhealthy regions.

Considering the yellow fever, therefore, as the great endemic of the tropical countries, Dr. C. explains its prevalence in them by referring it to the high and long continued heat of such regions, acting with peculiar force on the decaying animal and vegetable substances which there so much abound. He confirms this opinion by the fact of the production of this disease in the cities of the United States only during the hottest seasons; and establishes the position still more strongly by reference to a journal of the weather kept for several years in the city of Philadelphia, by which the correspondence between hot summers and the generation of yellow fever is conclusively proved. In conformity with this, he adduces examples and authorities to show that both ancient and modern writers have been accustomed to connect great heat and pestilence together, in the relation of cause and effect.

In treating of the pestilential or yellow fever of the year 1805, Dr. C. arranges his observations under the following heads. 1. Of the rise, progress and decline of the disease. 2. Of the origin and cause of the disease. 3. Of the contagious nature of the disease. 4. Of the means of preventing the disease. 5. Of the history of the disease. 6.

Of the causes of particular symptoms. 7. Of the prognosis. 8. Of the morbid appearances discovered by dissection. 9. Of the treatment of the disease.

Under the head of morbid appearances discovered by dissection, we find the following paragraphs, which, we are confident, will arrest the attention of the reader.

"The existence of *intro-susceptio intestinalis* was the only actual *discovery* made by the knife of the anatomist during the epidemic of 1805. This affection was confined to the small intestines, and was found to exist in several cases of the disease. I believe the discovery was first made by Dr. Stuart, in private practice, and afterwards by Dr. Parish, at the city hospital. I do not know that these gentlemen had had any intercourse or communication with each other on the subject, previously to the phænomenon having been observed by both of them. Dr. Stuart has published an account of one of his dissections, accompanied with a plate, in the Medical Museum, vol. ii. p. 299.

"The course of the introsusception was always from above downwards, the upper portion of the intestine being the *receiver*, and the lower portion the *received*. The following remarks are offered in explanation of the manner in which this affection appears to take place.

"A tonic spasm or permanent contraction occurs in a portion of the intestine, greatly diminishing its cavity and circumference, and suspending entirely its peristaltic motion. The portion of intestine immediately above this is free from spasm, and retains its peristaltic motion. Perhaps this motion is even increased by the action of some purgative medicine. When such a state of things continues for any length of time, the event likely to result from it is sufficiently obvious. The upper portion of intestine, forming by its natural action a fold at the place where the permanent contraction commences, passes down over the lower portion, and receives it completely into its embrace. But as the natural direction of the peristaltic motion is from above downwards, so long as the contraction of the intestine remains permanent, its lower portion will necessarily continue to be invested by its upper one.

"The modus operandi in the process of introsusception may be illustrated by the manner in which some people take off their stockings. These persons turn down the head of the stocking, and by pulling this, invert the whole stocking, and thus draw it off the leg. In this case, the lower por-

tion of the stocking, like the contracted or lower portion of the intestine, remains stationary, while the upper portion is forced over it, so as to receive it completely within itself.

" I am aware that objections have been made to the explanation which I have here attempted. Some physicians contend that during the formation of introsusception, the intestines are under the influence of a compound movement, or rather of two movements running in opposite directions. These characters allege, that the upper or receiving portion of the intestine, moves downwards by its natural peristaltic motion, while the lower or received portion moves upwards by an inverted or preternatural motion. But this explanation, besides being more complex than that which I have offered, is liable to other insurmountable objections, which will readily present themselves to the mind of the reader.

" Although the discovery of the existence of *introsusceptio intestinalis* is interesting in itself, yet I am sorry to add, that it has shed no new light on the treatment of the disease. We are even unable to enumerate any particular set of symptoms, which, during the life of the patient, give satisfactory evidence of the presence of this affection. It belongs, as yet, to the knife of the anatomist, and to that alone, to discover its existence after death. Could the existence of introsusceptio be clearly ascertained during life, perhaps bleeding the patient *ad deliquium animi*, would be the most likely way to remove the inflammation and spasm which constitute it.

" From what has been laid down in this section, it appears, that the primary and deepest ravages of malignant fever are confined entirely to the abdominal viscera. This is the strong hold of the disease, where it carefully concentres all its powers. Though the other parts of the system suffer greatly, they appear to suffer only through the medium of sympathy. They tremble from the shock impressed on these organs so essential to life. It is thus that the branches of a tree wither, when a deadly canker invades its roots."

We likewise present to the reader the following observations on the treatment of the disease.

" When called in on the first or second day of the disease, my chief reliance was placed on *bleeding*, *purging*, *sweating*, and *blistering*. These were my four cardinal remedies. When skilfully managed, they very seldom failed to bring the disease to a favourable termination. We

will treat of them in the order in which they are here enumerated.

"1st. Of *blood-letting*. It is scarcely necessary to observe, that this remedy was admissible only in the earlier stages of this disease, while the vascular action was yet excessive. It was not requisite in every case, nor did I find it expedient to repeat it more than three, or, at most, four times in any case. When the pain in the head and back were violent, particularly if they were accompanied by much sickness at stomach, this remedy was indispensable. From forty-eight to sixty ounces of blood constituted the full amount of what I drew from any one patient. In general, one or two moderate blood-lettings, on the first and second days of the disease, were sufficient. I seldom prescribed this remedy after the fourth, and never, I think, after the seventh day. The repetitions of it, however, as well as the quantity of blood drawn, were to be regulated entirely by the circumstances of the disease. No general rule could be laid down, as applicable to all cases. The judgment of the physician must be the arbiter of his practice with respect to this important remedy. It will be perceived, from what is here stated, that the epidemic of 1805 called for less blood-letting than that of some former years."

"2d. *Of purging*. It may be laid down, I believe, as an axiom in the practice of medicine, that purging is an indispensable remedy in all diseases where there exists an inflammation of, or an undue determination to, the abdominal viscera. It acts on these organs in a manner somewhat similar to the action of topical blood-letting on external parts, when labouring under inflammation or congestion. It not only removes the morbid stimulus of the fæces, but also that of a part of the fluids with which the diseased viscera are overloaded. It may be compared to a plentiful suppuration and discharge in removing the inflammatory state of an abscess."

"3d. *Of sweating*. Blood-letting and purging were excellent preparatives for this remedy. They weakened or removed the spasmodic affection which frequently existed on the surface of the body, and thereby contributed to the process of cuticular secretion. I seldom, therefore, attempted to throw my patient into a perspiration, till after his bowels had been plentifully evacuated.

"The stomach being generally tender and irritable, it was of great importance to produce a sweat by the mildest

and least irritating means. Accordingly, my only internal remedies, for this purpose, consisted of warm drinks, gently stimulating, such as vinegar whey, lemonade, or teas made of sage, balm, chamomile, or mint. These were taken in such quantities, and at such intervals, as the stomach could bear, and were assisted in their operation by the application of the steams of vinegar to the surface of the body. This application, which was of great efficacy in relaxing the skin, was made in the following manner, the simplicity of which was one of its highest recommendations, as it rendered it universally practicable. Four or five bricks were heated in the fire, to as high a degree as the hand could bear: these were wrapt up in pieces of flannel, which was then plentifully moistened with vinegar. The bricks thus prepared, were placed under the bed-clothes, close to the feet, legs, and hips of the patient, and renewed as often as circumstances required."

"4th. *Of blistering.* The proper period for blistering was a short time previously to the commencement of the second stage of the disease, that is, a little before the febrile action had entirely subsided. I have frequently prescribed this remedy, and that with great advantage, even before the sweating process had been brought to a close. The object in blistering was to produce excitement on the skin, in order to keep up, as much as possible, a centrifugal state of action, and thus preserve the stomach and other viscera essential to life.

"The places on which blisters were most frequently applied, were the wrists and ankles, the insides of the thighs, and the epigastric region. Blistering on the latter situation was frequently of singular service, in removing the disordered action of the stomach. As the intention of this remedy was to keep up external excitement, the blisters were ordered to be dressed occasionally, if necessary, with epispastic ointment."

"Intense pain in the head was, as already mentioned, sometimes greatly relieved by cups or leeches applied to the temples. The same end was attained by wetting the forhead with cold vinegar and water, or iced water, or by surrounding the whole head with bladders filled with ice. These applications, by absorbing heat, contributed to diminish excessive action in the vessels of the brain. Washing the extremities with cold vinegar and water was grateful

to the patients, and, when it did not improperly interfere with the process of sweating, was a useful remedy.

"The burning in the stomach and inclination to vomit, so distressing to many of the sick, were greatly relieved by the use of magnesia. That medicine, aided by mint tea, and sometimes by new milk, constituted a principal remedy against these painful and alarming symptoms. Other practitioners derived much advantage, in cases of obstinate vomiting, from the use of spirits of turpentine, a remedy first proposed by Dr. Physick. The Doctor appears to have taken the hint, in this instance, from the efficacy of that article in preventing gangrene from severe burns. His object was to prevent black vomit, and the death of the stomach from excessive inflammation. I am sorry to add, that in my hands, that remedy was not productive of those happy effects which are said to have attended its use in the practice of other physicians. This burning and sickness at stomach were, in some instances, relieved by injections of cold water, as well as by the application of leeches and cups to the epigastric region. This latter remedy I employed several times, with evident advantage. As I do not know of its having been used by any one but myself, I cannot venture to recommend it without diffidence. I hope its effects will be further tested by the experience of others.

"Injections calculated and intended to irritate the rectum, and even to produce a degree of inflammation in it, appeared to be on some occasions successful in diverting inflammation and death from the stomach. This remedy acted by revulsion, in the same manner as a blister applied to the epigastric region. It was founded on the general doctrine of sympathy, which teaches us, that morbid irritation in one part of the system, oftentimes relieves morbid irritation in another. It was admissible only after the febrile symptoms had subsided. These injections consisted of brandy either alone or rendered more highly stimulating by a slight admixture of pulverized pepper or mustard, spirits of wine, spirits of turpentine, or a weak solution of corrosive sublimate. As the remedy was both active and severe, it was necessary to use it with great caution, and that only in cases where the usual remedies had been employed without effect.

"One or two cases of obstinate hiccough were relieved by assafœtida, both given in pills, and administered, in an aqueous solution, in the form of injection.

"Repeated friction of the part with sweet oil contributed somewhat to the relief of a soreness of the abdomen. I tried the same remedy, but not with the same success, in that soreness, or rather pain of the lumbar region, which occurs in the beginning of the disease.

"In protracted cases of the epidemic, which had assumed something of a typhous form, wine, particularly claret and other light wines, constituted an excellent remedy. These were administered either alone, with water, or mixed with panado, gruel, sago, or other articles of diet. I saw but few cases of the disease in which the bark could be borne, and in none of them did it appear to be productive of any benefit.

"In the fever of 1805 I did not salivate more than two or three patients intentionally, although in the epidemics of former years that remedy constituted the sheet anchor of safety and hope.

"In a few protracted cases of the disease, where the debility was extreme, accompanied by a coldness of the skin, and a general defect of action throughout the system, great advantage was derived from the use of warm brandy, gin, or spirits and water, sweetened, and given at short intervals in such quantities as the stomach was capable of bearing."

We cannot conclude our remarks on this publication without reiterating our impressions of its merit and our hopes of its finding an extensive circulation. The pains which the author has taken to collect and compare meteorological observations made in Philadelphia for several years in succession, and to deduce from them many important inferences; the care and diligence with which he explored the rise, progress and causes of the epidemic of 1805, and his complete success in refuting the erroneous opinions concerning its importation from abroad and its propagation in the community by means of contagion;—all serve to stamp value and importance on the work, and will doubtless recommend it to the perusal of such as desire to obtain correct information on this interesting subject.

ART. 5. *A Journal of the Voyages and Travels of a Corps of Discovery, under the Command of Capt. Lewis and Capt. Clarke, of the Army of the United States, from the Mouth of the River Missouri, through the interior Parts of North-America to the Pacific Ocean, during the Years* 1804, 1805, *and* 1806; *containing an authentic Relation of the most interesting Transactions during the Expedition, a Description of the Country, and an Account of its Inhabitants, Soil, Climate, Curiosities, and Vegetable and Animal Productions. By* Patrick Gass, *one of the Persons employed in the Expedition, &c.* 8vo. pp. 262. *Pittsburgh.* M'Keehan.

ON a former occasion we gave an outline of this great expedition to explore the internal parts of North-America; and we concluded our remarks by informing our readers, that from the commanders of the party, or the principal of them, a full history of the journey and of the discoveries to which it gave rise, might be expected as soon as the materials could be put into a form fit for printing. That work, however, has not yet appeared.

In the mean time, to gratify public curiosity, a person named Gass, who behaved well during the expedition, has offered to his fellow citizens the journal kept by himself while engaged in that toilsome and hazardous employment. This is an anticipation in some degree of the more entire and circumstantial account of the expedition now preparing by its intrepid leaders. And it will serve to allay the ardour of expectation until the official and authoritative publication shall be made.

The writer has offered to his fellow citizens a *journal* in the strictest sense of the word. His book is a diary of the observations made by himself, and of occurrences which befel the company during the term of two years and four months, which elapsed from their departure from Wood river, a little below the mouth of the Missouri, in May, 1804, for the Pacific Ocean, to their return from Columbia river, on its shore, to the village of St. Louis, in September, 1806. There is very little of method or generalization in his remarks. Still the work contains a considerable number of valuable facts.

It is a task of some difficulty to separate the chaff from the grain, but as far as we can sum up the dry narrative in a

few paragraphs, it may be related thus: The party, consisting of forty-three men, proceeded up the Missouri to the Mandane settlement on its bank, and wintered there in latitude north 47° 21′ 32″. They thence ascended to the falls and rapids to the eastward of the Stony Mountains, where, within the distance of seventeen miles, the water descends three hundred and sixty-two feet perpendicular. Passing these they visited one of the chief sources of that river, at a spot whence the distance is very small, to one of the principal heads of the Columbia, which issues from the western side, and empties into the great South Sea. Afterwards, crossing the spine of North-American mountains, they went down the Columbia to its junction with the ocean, at which place they passed the cold season, in latitude 46° 19′ 10″, where the water was briny enough to be boiled for salt, the shores overspread with shells, a whale was driven ashore, and where ships had been to trade. The computed travelling distance across from the Missisippi to the Pacific, is, by Mr. Gass, rated at about four thousand one hundred and thirty-three miles.

There was but one man lost during the adventure, and he died a natural death not long after they set out.

The quadrupeds they saw were prairie dogs, hares, goats or antelopes, called also sometimes *cabres*, buffaloes, deer, elks, beavers, wolves, otters, mountain-sheep, white sheep or vigone, prarows or badgers, black-tailed or mule deer, porcupines, prairie wolves, long-tailed deer, white bears, brown or grisley bears, white hares, ground-hogs, wood-rats, racoons, panthers and cats. These, with two or three exceptions, by turns served them for food. And frequently when they were pinched for subsistence on passing the mountains, they bought Indian dogs and horses to eat, preferring the flesh of both, particularly of dogs, to their portable soup.

The birds they killed were various, but among others were water-pelicans, prairie hens, different sorts of ducks, wild geese, brents, cranes, swans, ravens, vultures, quails, pheasants, grous, and buzzards.

The fishes were chiefly cat-fish on the Missouri, and salmon on the Columbia, with a variety of smaller eatable species on both.

The country through which the Missouri runs may be considered as one vast and immense plain, extending from the mouth of the Kanza to the chain of North and South Mountains. It is interspersed with hills of moderate height.

Here are the first cataracts in that remarkable river; and these are computed to be almost three thousand miles, as the river runs, from St. Louis. The mouth of the Yellow-Stone river is one thousand eight hundred and eighty-eight miles from the same place.

If we understand Mr. G. the character of these plains is generally a barren sand or gravel, that is, exceeding prone to crumble and wash away. Though along the rivers there are frequent savannas, prairies and fertile spots. But the timber is scanty and small, and the grass thin and short. The most large and common trees are willows, and a species of poplar, called *cotton-wood;* and of these it requires no small search to find a trunk long and stout enough for a canoe. Sometimes it was with difficulty they could collect wood enough to cook with. The islands in the Missouri are also low, and commonly overflowed when the water is high.

The Rocky Mountains are very bare of trees. Large timber is scarce, and the small shrubs, willows, cedars and spruces, mostly grow on the low grounds and shores. The want of trees is frequently mentioned, as well as their dwarfishness and fewness where they grow at all. But he observes that on some of the natural meadows a kind of clover, gooseberries, currants, service-berries, mulberries, angelica, strawberries, haws, grapes, and wild-cherries, are indigenous plants. So also are two vegetables which he believes to be hyssop and flax. Beyond these mountains some places are thickly timbered with several sorts of pine. But oak, hickory, maple, and the other valuable forest trees seem not to grow in these regions.

Several times they found warm springs, and one of them was hot enough to boil meat.

The bluffs or cliffs forming the banks of the Missouri are frequently of a dark blackish colour. Mr. Gass says, the earth of which they are composed dissolves like sugar (p. 41). Every rain washes down great quantities of it, and the rapidity of the current keeps it mingled and floating in the water. To this admixture, so constantly derived from the friable and loose soil through which the Missouri flows, it owes the muddiness for which it has ever been distinguished, and which it carries down to the Mexican gulf, and deposits to form the delta there.

Above the Mandane village Mr. G. saw pumice-stone formed on the spot by subterranean fire beneath one of the

high bluffs fronting the river. From this and other similar sources come the pieces of that volcanic substance which occasionally float down to the lower country.

The petrified skeleton of a very large fish, forty-five feet long, on the top of a high cliff in the Sioux country, and a petrified log of wood, out of which whet-stones and hones could be made, in the Mandane region, are among the rarities beheld by this traveller. Under this head of curious things may also be noticed the plastic constitution of the human skull, when subjected to compression during early infancy. On the Columbia river, there is a tribe of natives who mould the heads of their children into a singular form, by squeezing and binding them between two boards. "A piece of board is placed against the back of the head, extending from the shoulders some distance above it. Another shorter piece extends from the eye-brows to the top of the first; and they are then bound together by thongs or cords made of skins, so as to press back the forehead, make the head rise at top, and force it out beyond the ears." These people are thence called flatheads. (p. 156.)

It pleased us to find with how much relief to others, and advantage to themselves, the two commanding officers acted the part of physicians among the poor Indians. Wherever man and misery are found, there also are opportunities afforded of healing the wounds of the body and the spirit, and of applying lenitives to pain. The medical character renders its possessor welcome to all nations, and gives him usefulness and consideration among the rude as well as the polished inhabitants of the earth. By practising physic among the suffering natives of Kooskooske, they procured a horse for food, when they and their companions could get animal sustenance in no other way, and were in danger of starving. On another occasion, while in that region of hunger, the reward of a mare and colt, which they received for their medical attendance, was no less acceptable. When such acknowledgments were made to their benefactors by the savages of Louisiana, there can be no difficulty in understanding how Apollo, Æsculapius, and Pæan were honoured by the barbarians of Greece.

On the whole, we gather from the perusal of this small volume, that from the sterility of the greater portion of the country extending from the heads of the Osage river and from the mouths of the Kanza and the Platte, it is not likely to be useful in agriculture, nor to become the residence of

civilized man. It will probably remain in the possession of the scanty tribes of the aborigines, whom their mutual and unabating thirst for each other's blood may leave alive. And as joint-tenants with these miserable remnants of the human race, the beaver, the wolf, the bison, the deer, and other wild animals of the desert, will continue to propagate, and to afford furs and peltry to the hunter and the trader, for an incalculable succession of years. In the mean while, our fellow citizens of the Atlantic states, and of the republics beyond the Alleghanies, becoming convinced by these discoveries what few temptations the country ceded to us by France affords to agricultural enterprize, will be content to remain in the more fertile and happy regions that have been allotted to them, and neither agitate their minds nor ruin their fortunes in projects and speculations about lands which may be compared to Scythian deserts, and which neither the French nor the Spaniards, with all their exertions, have ever been able to improve to any considerable extent, during the long series of years that have elapsed since their original discovery and settlement.

But as this is the publication of a man who appears to have acted as a soldier in the detachment, his opportunities for information must necessarily have been inferior to those of his commanding officers. We must, therefore, consider this only as a forerunner of their more methodical, correct, and comprehensive publication.

MEDICAL & PHILOSOPHICAL NEWS.

DOMESTIC.

Remarkable atmospheric Constitution of the Summer and Autumn of 1807.

THE summer of this year was nearly as mild, in point of temperature, as that of 1806. The month of June was singularly cool. The same state of the weather continued with little variation till about the middle of July, when the heat rose to a considerable degree, and remained high for ten or twelve days. After this the weather resumed its former moderation, and continued to be unusually mild and pleasant throughout the months of August and September.

An epidemic *Ophthalmia* prevailed during a considerable part of the months of June and July. This disease was remarkable for the suddenness with which it frequently invaded the patient, and for the great degree of severity which the inflammation in many instances attained in a short time; but it was seldom of long duration, and generally showed a disposition to yield to the usual treatment.

Towards the latter part of July, this affection of the eyes began to give place to the *Influenza*, which soon after its first appearance became generally epidemic and raged with great violence for the chief part of the month of August. It has rarely occurred that so large a proportion of the inhabitants of this city has been confined by illness at the same time, as on this occasion. And though a great number escaped without suffering more than slight indisposition, yet the number was not small of those who underwent a tedious and violent attack of this disease. The earliest subjects of it were persons in the prime and vigour of life; those who more generally escaped it were the aged, and young children. The preceding disease of the eyes afforded, to such as had been subjects of it, no exemption from an attack of influenza.

The invasion of influenza was similar to that of common catarrh, but generally much more sudden and severe. After feelings of languor, lassitude and debility, experienced for a longer or shorter time, the patient was attacked with chil-

liness, pains in the head and chest, frequently in the back and limbs, followed by febrile heat, which commonly rose to a considerable height. These symptoms were generally accompanied with hoarseness and cough, which were of various duration and degree, but usually formed a distressing part of the complaint. Sneezing and suffusion of the eyes with redness and tears were observed in many cases; but many other cases likewise occurred in which the symptoms were more purely febrile than had been observed in former instances of this epidemic. In the greater number of cases the febrile symptoms did not continue with much severity longer than thirty-six or forty-eight hours. In some, however, these symptoms remained much longer, and confined the patient to bed for many days.

The virulence of the noxious principle which produced this disease was manifested by the extreme prostration and debility which commonly ensued soon after the attack, and often rendered the most robust persons incapable of much muscular exertion. This debility continued with some to a very distressing degree long after the febrile action had subsided. The same virulence was further exhibited in the violence and obstinacy of the cough, which was more harassing, dry, tight, and incessant than had been observed in former instances of this epidemic. In a few cases the cough assumed the convulsive appearances of hooping-cough. The inflammatory affection of the lungs sometimes proceeded to the extent of pneumonia; and in many other instances the foundation of phthisis was laid, which afterwards hurried on with great rapidity.

Besides the more common catarrhal form of the disease, it sometimes affected the throat like cynanche tonsillaris, sometimes produced inflammatory swellings of the jaws and tooth-ach, and, in a few cases, appeared under all the symptoms of croup.

Relapses were very frequent, and became a source of great and aggravated distress to the patient. Many persons, after proceeding some time in a state of convalescence, suffered a renewal of all the symptoms; in some this occurred several times, and in a degree much more severe than the original attack.

The mortality from this disease was very inconsiderable in the city of New-York. It was generally confined to aged persons, or to such whose constitutions had been previously reduced and broken. The terminations in pneumonia, croup

and phthisis, occasionally led to a fatal event. In some other places, we have understood, the deaths were much more numerous.

In the treatment of this disease depleting remedies were chiefly employed, and such only appeared to be beneficial. Blood-letting was often resorted to, and certainly was always necessary where the fever ran high, or where the head and lungs were severely affected. Sometimes the repetition of this remedy was strongly required. Cathartics of a mild or more active quality were also almost universally demanded. Cool air and low diet, with plentiful dilution, afforded great relief during the febrile state, and especially in the numerous cases in which the head was violently affected. Diaphoretics, demulcents and expectorants were employed, as usual in such affections of the head and breast, and generally with great benefit. The severe complaints of the head and thorax frequently required the application of blisters, after blood-letting, and the good effects of them were very evident. In many cases a solution of the high febrile state, after a continuance of thirty-six or forty-eight hours, suddenly took place with a profuse sweating; when this occurred, the discharge by the skin was encouraged by a free use of diluents, and by withdrawing in some degree the application of cool air, which had been found so beneficial during the period of high excitement.

As to the cause of this disease, different opinions have been formed. The prevailing opinion is, that it arose from a peculiar morbid constitution of the atmosphere, inexplicable in its nature and production, and only discoverable by its effects. In this manner alone can the phenomena be satisfactorily accounted for. The other opinion, of its propagation depending on contagion, is liable to insuperable difficulties. On a survey of the facts, it seems to be incredible that so great a number of persons, dispersed over a territory of such immense extent, should have been affected so rapidly by a contagion spreading from one individual to another. It is in the nature of contagion to creep gradually from one person or from one family to another, and to attack such only as have been exposed to its influence. When we find multitudes of people, who have had no intercourse, suddenly invaded by the same disease, and great numbers of them at the same time, we are compelled to refer it to the agency of some principle more widely spread and more rapidly communicated than any contagion hitherto known.

It is one of the blessings of nature, that contagions, however virulent and destructive, are slow in their progress, and limited in their diffusion. And whenever we find a disease spreading with a celerity incompatible with the established laws of this kind of noxious power, we must of necessity resort to the supposition of some morbid modification of the atmosphere, as the only cause sufficient to explain the phenomena. No ingenuity can otherwise account for the attack of influenza among the crews of vessels on the ocean, or in approaching harbours, previously to any intercourse with the inhabitants.

So far as information has been obtained by us, after very diligent inquiry, this disease appears to have originated in the city of New-York. We possess positive and accurate intelligence of its being first observed here, and of its extending afterwards in the eastern, northern, western, and south-western directions. In the month of October it was prevailing in different parts of Canada; but it was not until about the beginning of November that it had reached the southern boundary of the United States.

The following observations, collected at Washington (District of Columbia), will throw much light on the progress of this disease from one part of the United States to another: Congress was summoned by proclamation to assemble on the 26th October. The members of the two houses left their homes in the different states and territories in season to arrive at the seat of government before the time prescribed. The senators and representatives from the southern and western parts of the Union had advanced considerably on their respective journies before they met the epidemic. The Georgians and South-Carolinians proceeding for Washington, fell in with it near Raleigh, about the 17th or 18th October. The members from Tenessee found it at Staunton, within a day or two of the same time. Several gentlemen coming from Kentucky, reached the Hot-Springs in Virginia on the 16th, before they found the inhabitants sick with it, or experienced it themselves. One who came from Chilicothe in Ohio discovered that he was within the influence of it at Hockhocking on the 12th. Some of these gentlemen suffered the distemper on the road; and others were not invaded by it until their arrival at the seat of government. A correct observer of its progress towards the north-east, started from New-York for Maine on the 20th of August. The distemper was then very rife in the city.

On his arrival at Newport, the people were already seized with it. In Boston they just began to complain of it. And on his arrival at Kennebeck, upon the 30th, the inhabitants were yet free from it, but in a day or two suffered from its attack.

We extract the following notices on this subject from a newspaper containing a paragraph dated at Augusta, Georgia, Dec. 3, 1807: "Within twenty or thirty days past, there have been, we believe, more deaths in this place and the neighbourhood of it, than have happened for a twelvemonth preceding. The prevailing complaints have been the influenza and pleurisy. At present these disorders have greatly subsided in this place, but in many parts of the country, we are told, that the influenza is making serious progress. At Milledgeville we learn that this, or some other inflammatory complaint has very generally prevailed, and that the indisposition of the members of the Legislature had some days prevented that body from forming a house: two members, Mr. Jones, senator from Wayne, and Mr. Draine, representative from Columbia, have died. As far as has come within our knowledge or observation, the influenza has generally been most severe with persons somewhat advanced in life—nor have we heard of *any* instances in which it has proved fatal to children."

The following information concerning the state of public health at Paris, published in London at the beginning of September, will throw some light on this subject: "Our Paris correspondent informs us that the heat has been extremely intense during the whole of this summer, and that tempestuous weather has occurred less frequently than usual. Among the complaints at present most prevalent in Paris, are *catarrhal affections*, which, however, have in general readily yielded to the use of mild diluents, slightly acidulated, the occasional application of vesicatories and leeches to the pained parts of the chest, and similar means. Among young females, chlorotic affections, probably occasioned by the extreme heat of the weather, have been also unusually frequent. In the treatment of this disease, medicines, instead of proving productive of benefit, have appeared rather to aggravate the complaint. The exercise of dancing in a moderate degree, while care is at the same time taken not suddenly to check perspiration, the use of tepid and acescent drinks, &c. have been found more useful in alleviating it than the prescriptions of the apothecary. Owing to the

state of the atmosphere, consumption appears likewise to have proved very destructive. Besides the use of lowered air, the employment of fumigations with fir-shoots, on the supposition that the tuberculous affection did not extend beyond the bronchiæ, has tended greatly to relieve the patients, and retard the malady. As this disease has of late greatly increased in frequency, it will, he hopes, attract the particular attention of the faculty."

Yellow Fever in 1807.

During this remarkable season, only a very few sporadic cases of yellow fever were observed in the city of New-York. The whole number of instances, well authenticated, we suppose, could not have exceeded twenty; and we doubt, indeed, whether they amounted quite to that number. Most of the cases occurred in the month of September, or in the early part of October. Four of them were distinctly observed in the New-York Hospital. There was not the least ground to suspect, in any of these cases, either the importation of contagion from abroad, or the propagation of the disease here by that medium.

In Charleston, South-Carolina, this disease raged with great violence and mortality during a considerable portion of the autumn. We are not yet in possession of the circumstances of the epidemic so far as to enable us to lay them before our readers. An account of these, however, derived from a most respectable source, is confidently expected, and will probably arrive in time to appear in our next number.

Acute Sickness at Deerfield, in New-Hampshire, 1807.

In the following narrative of a local and sporadic disease, will be found an attempt to make it contagious, and to derive it from Hartford, on Connecticut river, to Deerfield. The people of Hartford must laugh at the credulity of this writer, as much as the inhabitants of the West-Indian islands amuse themselves with the easy faith of those citizens of the United States that borrow all malignant fevers from the southern climates. We copy it from the Walpole Observatory of November 9.

"Tuesday, Sept. 2. Joshua Frink, a single man, of about twenty-five years of age, returned sick from Hartford, Connecticut, to his father's house in Deerfield. His disorder increased, and he appeared very dangerous, but hath

since recovered. The day he came, his mother, Amy, wife of Miner Frink, aged sixty-one, and his brother Samuel Frink's daughter attended him: Those two persons, in the night of Friday, Sept. 25, were taken with ague fits and vomiting, succeeded by terrible pain and soreness throughout their whole frame—soon lost their reason, and expired in about twelve hours in a state of putrefaction. Among the rest of the neighbours who attended on the sick, Mrs. Susanna Sweet, wife of Mr. Joseph Sweet, brother to Mrs. Frink, aged sixty-four, with their daughters, Jerusha Jones, wife of Mr. Amos Jones, and an infant, nine months old, were perhaps the most exposed. Friday night, Oct. 2, Mr. Sweet, and another daughter of Samuel Frink, were taken in like manner, and both expired in thirteen hours. Saturday, Oct. 3, Jerusha Jones and her child taken with the same, and died in 12 hours. Sunday, 4th, Minor Frink, jun. taken in nearly the same manner, and expired in about the same term of time, aged fifty-seven. Wednesday, Oct. 7, Sally Blacker, wife of John Blacker, daughter of Mr. Sweet, deceased, having been present at the death of her mother, was taken with the same disorder, but did not putrify immediately like the others, except one of her fingers; she lived until Monday, Oct. 12, and then expired.

"Joel, son of Mrs. Frink, deceased, taken the same hour with his mother, aged seventeen; Lyman, son of Samuel Frink, aged six; and a young daughter of Minor Frink, jun. taken about the same time with Mrs. Sweet, have recovered; other cases are yet undetermined whether it was the same disorder or not.

"The people of the vicinity were much alarmed with this solemn providence of God, so that they were afraid to lend that friendly assistance in sickness, and burying the dead, which the laws of nature and gratitude demand. The husband, with his heart swollen with grief, was put to the painful necessity of assisting in laying out his own wife for interment. Clergymen refused their attendance, and what is considered the common form of decency in such cases, was wholly neglected. Those who were the unhappy subjects of this dreadful disorder were immediately deprived of reason, racked with pain, and hurried into eternity, and prudence and safety required that they should be hurried to the grave as soon as possible. A melancholy gloom appeared visible in almost every countenance; but

their fears have subsided in this place with regard to this disorder.

"The young man first mentioned, informs that he helped to unlade a vessel at Hartford, the hands of which were all sick, from which, he supposed, the disorder was taken, and that there were seven lying dead at one time the next door to his lodgings."

The Comet of 1807.

About the middle of September, 1807, a comet was observed. Its place was in the west, and it continued visible for the principal part of an hour after the setting of the sun. It was large enough to be seen with the naked eye. Its head was of a ruddy or fiery aspect, and its tail was of considerable length. It was a fair subject of observation until late in October; and was then receding from its perihelion. We have not seen any correct and detailed observations upon it by our astronomical gentlemen. It is to be hoped, however, that this revolving body, which has come from the unknown regions of space on a visit toward our solar and planetary system, may have attracted a due portion of scientific regard.

There would be no small gratification in knowing whether this comet is one of the four hundred and fifty, or more, which are supposed to belong to our department of the universe? or whether it is conjectured to be one which has never been presented to the eye of man before? Has it kept, during its perihelion, beyond the orbit of Herschell? Has it entered the confines of our planetary revolutions? It is expected that calculations will be made on the eccentricity of its ellipsis, and on the inclination of its plane, as well as on the inequality of its motion, both approaching and retrograde. If comets are, as is generally agreed, opaque like the planets, and, like them, also illuminated by our sun, it may be a curious inquiry whether they are not enlightened also by other suns during their recess into the remoter regions of space. The idea, too, of eclipses occasioned by comets in their perigee coming between the earth and the sun, and thereby causing a temporary darkness not to be accounted for by any interposition of the moon, is worthy of further research. But we wait the accounts of our astronomical observers, our Dewitts, Pattersons, Ellicots, Madisons, Garnetts, our Ferrers, our Webbers. When the trajectory of this comet shall be delineated, representing its

course while visible by the inhabitants of our earth, a better judgment will be made of the angle it formed with the ecliptic, of its path in the zodiac, of the attraction it might have extended to Herschell, Saturn, or Jupiter, and possibly of its coma, its atmosphere, and of the solar atmosphere itself.

Improvement in the Preparation of Artificial Mineral Waters.

One of the beautiful applications of chemistry is to the analysis of mineral waters. By precipitation, evaporation, filtration, and other processes, knowledge is obtained of the ingredients which are dissolved or contained in springs and fountains; and the quantities and proportions of each are ascertained. Hence the resolution of a mineral water into its constituent parts, though a problem of considerable nicety in chemistry, is justly considered as capable of exact accomplishment. In other words, art has been enabled to detect not only the several materials, but the proportions of each, which nature has mingled in any of the waters of the globe.

A consequence of this discovery is, that artificial mineral waters can be prepared by art. The ingredients are to be weighed out and added in proper quantities. And proceeding thus by synthesis, it is in the power of any person possessing ordinary skill, so to charge and tincture common water with the proper ingredients, as to convert it to a mineral water. The laboratory thus becomes a manufactory of these rare and far-sought liquids; and the weak, the sick and the poor, who cannot conveniently travel to the fountain head, may, nevertheless, regale themselves with exact imitations of those health-inspiring draughts prepared at home. Establishments for preparing mineral waters of many different kinds, have accordingly been made in several places. And the proprietors have been of opinion, that the artificial preparations were, in some instances, preferable to the natural, inasmuch as certain improper articles might be left out of a particular water, and whenever it was deemed requisite, other proper materials might be added. And thus, in chemistry as in painting, art may be said to surpass nature.

Of late the preparation of some artificial mineral waters has been carried a step further. Instead of procuring from the laboratory the liquids in a potable form corked up in jugs or bottles, the ingredients are duly compounded, and

in their dry condition put into papers, boxes, or phials. By mixing the prescribed quantity of this powder with the due proportion of common water, it becomes immediately mineralized and fit for drinking. And as the solid matter of a hogshead of mineral water often amounts to but a small quantity, so a moderate parcel of ingredients, capable of being easily carried in a traveller's trunk, will serve to prepare a large quantity of mineral water for his use, and at exactly such times and in such doses as he may incline to take it.

Of this kind seems to be the chemical preparation made in imitation of *Cheltenham salts.* This *chalybeate aperient* is said to be preferable to the native article. Thirty grains of the solid concrete will make half a pint of water correctly imitating that of Cheltenham spa. And two or three such glasses are generally enough for an operation. In addition to the smallness of the space that salts thus prepared occupy, it may be added, that as long as they are kept dry, they undergo no decomposition or change.

Petrified Wood found in Maryland.

About three miles north of the capitol at Washington, there are many examples of stony bodies which appear formerly to have been wood. They are found along the sides and bottom of a deep gulley, on the farm of Samuel H. Smith, Esq. They have the exterior appearance of wood and bark. The pieces are of different shapes and sizes, scattered through the earth, and not forming extensive strata. In all, the fibres of the wood are very easy to be traced. In some, knots can be plainly seen. Certain of them have the appearance of having undergone the lapidifying process while the wood was sound, and others again seem as if it had not taken place until they were almost rotten. The broken ends of some fragments are almost as natural as if they had undergone no mineralization; and the annual circles of wood are very discernible in others.

These remarkable specimens are of the silicious order; and the surfaces of many of them are covered with irregular crystals. Since it has been ascertained (see Kirwan's fourth Geological Essay) that silicious earth is capable of being truly dissolved in water, as well as of being diffused through that liquid, it may be readily conceived that in favourable situations flinty particles may be deposited in the place of liquors, so gradually, that as the woody matter rots

and crumbles away, the silicious shall be substituted in its place. And the transition is in many cases as exact as if the petrifactions had been cast in the same mould with their prototypes. It is to this class of mineral substances that the word *petrifaction* applies in its strict and proper sense; where an organized body, or some part thereof, undergoes a gradual loss of its particles, and a substitution of terrene atoms in their place, until at last the whole is transformed into a stony mass possessing the figure of the original.

Aspect and Character of the Country lying between the Upper Missisippi and the Missouri.

At the *Prairie des Chiens*, near the junction of the river Ouisconsin with the Missisippi, lives Mr. John Campbell. For twenty years he has been a trader among the natives, and is well acquainted with the tribes of Sacs, Renards, Puants, and the Tetons, Yanktons and other bands of the Naudowessies or Sioux. This man once made an expedition to explore the country, west of his present residence, for about fifteen hundred miles. On this occasion, he crossed the Missouri far to the southward of the Great Bend, in about the latitude of 43° 40′ or 44° N.

Mr. C. describes the country between the two great rivers as one vast expanse of sand or sandy gravel. It is destitute of mountains, and almost of hills; contains no strata of rocks, and is generally bare of trees. Along the rivers and streams, indeed, there are some good spots of land where timber grows; but in many parts of the plains, wood is so scarce that travellers are obliged to carry on horses the fuel necessary to cook their food. The land is frequently interspersed with ponds of water, and between these its chief produce is a coarse grass with very small shrubs scattered among it. Upon these the bison and deer are accustomed to feed; and are enabled to subsit in great numbers. In these regions too, so poorly adapted to the residence of man, the beaver, the wolf, the bear and other animals of the desert, multiply their kind.

Their principal invaders are the roving tribes of Indians, who are in a state of society not well described by writers. It may be called the *Wild pastoral.* Bison, the progenitor of our tamed neat cattle, is a principal article of their food. A band of hunters will surround a herd of these creatures, and sometimes kill every one of them. As soon as this is done, they put up their poles, which they carry along with

them, and form houses by covering these with the skins. The whole tribe thus encamp as near as possible to the field of slaughter; and there they continue until they have consumed and jerked all the meat of the carcasses. Having prepared themselves for a removal, they pack up their dried meat and the few other things they possess, and, in compliance with their roving habits, travel away in quest of another similar adventure.

The principal part of the country north and north-east of the Missouri, may hence be considered by the geologist as partaking of the same character which belongs to the extensive tracts stretching to south and south-west of it. Its situation in colder latitudes will render it less inviting as a settlement to civilized man. And while this continues to be the case, and the human inhabitants consist merely of straggling companies of savages, with a few white traders fixed in favourable positions, it is probable that these immeasurable wilds will continue the favourite haunts of those quadrupeds, whose furs and skins will for ages to come supply the market with some of its most costly luxuries.

Evans's Improvement in the Employment of Steam.

A more advantageous method of working machinery by means of steam, than is commonly practised, has been, within a few years, introduced into use, by Mr. Oliver Evans. To effect this, he loads his safety-valve with a weight that raises the heat of the steam to about 270°. And if he wishes to augment its power still further, he raises it to about 305°. By making his boiler and all the apparatus strong enough to resist this external expansion, he wonderfully increases the force of the engine and the ease with which it works.

This ingenious and practical artist declares that by doubling the quantity of fuel he can multiply the power of the machine sixteen-fold. It appears from his experiments, that the increase of fire in an arithmetical ratio is followed by an augmented elasticity of the heated steam in a more than geometrical proportion.

By thus availing himself of this simple principle, that is, of producing steam at a vastly greater rate than the intensity of the heat is increased, Mr. Evans employs his engines with great economy in sawing wood and marble, and doing various other kinds of work. For by loading the safety-valve he can increase the pressure from twelve to twenty or

any other number of atmospheres, and drive his saws, his mill-stones, his pumps, or other machinery, with a corresponding force and celerity. And at every increment of fuel, he procures more than a corresponding increment of elastic vapour.

Fall of Meteoric Stones in Connecticut.

Yale College, Dec. 26, 1807.

Messrs. STEELE & Co.

As imperfect and erroneous accounts of the late phenomenon at Weston are finding their way into the public prints, we take the liberty of enclosing for your paper the result of an investigation into the circumstances and evidence of the event referred to, which we have made on the ground where it happened. That we may not interrupt our narration by repeating the observation wherever it is applicable, we may remark, once for all, that we visited and carefully examined every spot where the stones had been ascertained to have fallen, and several places where they had been only suspected without any discovery; that we obtained specimens of every stone—conversed with all the principal original witnesses—spent several days in the investigation; and were, at the time, the only persons who had explored the *whole* ground.

We are, gentlemen, your obedient servants,

BENJAMIN SILLIMAN,
JAMES L. KINGSLEY.

The meteor which has so recently excited alarm in many, and astonishment in all, first made its appearance in Weston, about a quarter or half past six o'clock A. M. on Monday, the 14th inst. The morning was somewhat cloudy; the clouds were dispersed in unequal masses, being in some places thick and opaque, in others light, fleecy, and partially transparent; while spots of unclouded sky appeared here and there among them. Along the northern part of the horizon, a space of ten or fifteen degrees was perfectly clear. The day had merely dawned, and there was little or no light, except from the moon, which was just setting. Judge Wheeler, to whose intelligence and observation, apparently uninfluenced by fear or imagination, we are indebted for the substance of this part of our account, was passing through the enclosure adjoining his house, with his face to the north, and his eyes on the ground, when a sudden flash, occasioned

by the transition of a luminous body across the northern margin of clear sky, illuminated every object, and caused him to look up. He immediately discovered a globe of fire, just then passing behind the first cloud, which was very dark and obscure, although it did not entirely hide the meteor.

In this situation its appearance was distinct, and well defined, like that of the sun seen through a mist. It rose from the north, and proceeded in a direction nearly perpendicular to the horizon, but inclining, by a very small angle, to the west, and deviating a little from the plane of a great circle, but in pretty large curves, sometimes on one side of the plane, and sometimes on the other, but never making an angle with it of more than four or five degrees. It appeared about one half or two thirds the diameter of the full moon. This description of its apparent magnitude is vague, but it was impossible to ascertain what angle it subtended. Its progress was not so rapid as that of common meteors and shooting stars. When it passed behind the thinner clouds, it appeared brighter than before; and, when it passed the spots of clear sky, it flashed with a vivid light, yet not so intense as the lightning in a thunder storm, but rather like what is commonly called *heat lightning*. Its surface was apparently convex.

Where it was not too much obscured by thick clouds, a conical train of paler light was seen to attend it, waving, and in length about ten or twelve diameters of the body. In the clear sky a bright scintillation was observed about the body of the meteor, like that of a burning fire-brand carried against the wind.

It disappeared about fifteen degrees short of the zenith, and about the same number of degrees west of the meridian. It did not vanish instantaneously, but grew, pretty rapidly, fainter and fainter, as a red-hot cannon ball would do, if cooling in the dark, only with much more rapidity.

There was no peculiar smell in the atmosphere, nor were any luminous masses seen to separate from the body. The whole period between its first appearance and total extinction, was estimated at about thirty seconds.

About thirty or forty seconds after this, three loud and distinct reports, like those of a four pounder, near at hand, were heard. They succeeded each other with as much rapidity as was consistent with distinctness, and, all together, did not occupy three seconds. Then followed a rapid succession of reports less loud, and running into each other,

so as to produce a continued rumbling, like that of a cannon ball rolling over a floor, sometimes louder, and at other times fainter; some compared it to the noise of a waggon running rapidly down a long and stony hill; or, to a volley of musketry, protracted into what is called, in military language, a *running fire.* This noise continued about as long as the body was in rising, and died away apparently in the direction from which the meteor came.

The accounts of others corresponded substantially with this. Time was differently estimated by different people, but the variation was not material. Some augmented the number of loud reports, and terror and imagination seem, in various instances, to have magnified every circumstance of the phenomenon.

The only thing which seemed of any importance beyond this statement, was derived from Mr. Elihu Staples, who said, that when the meteor disappeared, there were apparently three successive efforts or leaps of the fire-ball, which grew more dim at every throw, and disappeared with the last.

Such were the sensible phenomena which attended this meteor. We purposely avoid describing the appearances which it assumed in other places, leaving this task to others who have the means of performing it more accurately; while we proceed to detail the consequences which followed the explosions and apparent extinction of this luminary.

We allude to the fall of a number of masses of stone in several places, principally within the town of Weston. The places which had been well ascertained at the period of our investigation, were six. The most remote were about six or ten miles distant from each other, in a line differing little from the course of the meteor. It is therefore probable that the successive masses fell in this order, the most northerly first, and the most southerly last. We think we are able to point out three principal places where stones have fallen, corresponding with the three loud cannon-like reports, and with the three leaps of the meteor, observed by Mr. Staples. There were some circumstances common to all the cases. There was in every instance, immediately after the explosions had ceased, a loud whizzing or roaring noise in the air, observed at all the places, and, so far as was ascertained, at the moment of the fall. It excited in some the idea of a tornado; in others, of a large cannon shot in rapid motion; and it filled all with astonishment and

apprehension of some impending catastrophe. In every instance immediately after this, was heard a sudden and abrupt noise, like that of a ponderous body striking the ground in its fall. Excepting one, the stones were more or less broken. The most important circumstances of the particular cases were as follows:

1. The most northerly fall was within the limits of Huntington, on the border of Weston, about forty or fifty rods east of the great road from Bridgeport to Newtown, in a cross road, and contiguous to the house of Mr. Merwin Burr. Mr. Burr was standing in the road, in front of his house, when the stone fell. The noise produced by its collision with a rock of granite, on which it struck, was very loud. Mr. Burr was within fifty feet, and immediately searched for the body; but, it being still dark, he did not find it till half an hour after. By the fall, some of it was reduced to powder, and the rest of it was broken into very small fragments, which were thrown around to the distance of twenty or thirty feet.—The granite rock was stained at the place of contact with a deep lead colour. The largest fragment which remained did not exceed the size of a goose egg, and this Mr. Burr found to be still warm to his hand. There was reason to conclude from all the circumstances, that this stone must have weighed about twenty or twenty-five pounds.

Mr. Burr had a strong impression that another stone fell in an adjoining field, and it was confidently believed that a large mass had fallen into a neighbouring swamp, but neither of these had been found. It is probable that the stone whose fall has now been described, together with any other masses which may have fallen at the same time, was thrown from the meteor at the first explosion.

2. The masses projected at the second explosion seem to have fallen principally at and in the vicinity of Mr. William Prince's, in Weston, distant about five miles, in a southerly direction, from Mr. Burr's. Mr. Prince and family were still in bed, when *they heard a noise like the fall of a very heavy body, immediately after the explosions.* They formed various unsatisfactory conjectures concerning the cause—nor did even a fresh hole made through the turf in the door-yard, about twenty-five feet from the house, lead to any conception of the cause, or induce any other inquiry than why a new post hole should have been dug where there was no use for it. So far were that family from conceiving of the possibility of such an event as stones falling from the

clouds. They had indeed formed a vague conjecture that the hole might have been made by lightning, but would probably have paid no further attention to the circumstances, had they not heard, in the course of the day, that stones had fallen that morning, in other parts of the town. This induced them, towards evening, to search the hole in the yard, where they found a stone buried in the loose earth which had fallen in upon it. It was two feet from the surface,—the hole was about twelve inches in diameter, and as the earth was soft and nearly free from stones, the mass had sustained little injury, only a few small fragments having been detached by this shock. The weight of this stone was about thirty-five pounds. From the descriptions which we have heard, it must have been a noble specimen; and men of science will not cease to deplore that so rare a treasure should have been immediately broken in pieces. All that remained unbroken of the noble mass, was a piece of twelve pounds weight, since purchased by Isaac Bronson, Esq. of Greenfield, with the liberal view of presenting it to some public institution.

Six days after, another mass was discovered, half a mile north-west from Mr. Prince's. The search was induced by the confident persuasion of the neighbours that they heard it fall near the spot where it was actually found buried in the earth, weighing from seven to ten pounds. It was found by Gideon Hall and Isaac Fairchild. It was in small fragments, having fallen on a globular detached mass of gneiss rock, which it split in two, and by which it was itself shivered to pieces.

The same men informed us that they suspected another stone had fallen in the vicinity, as the report had been distinctly heard, and could be referred to a particular region somewhat to the east. Returning to the place after an excursion of a few hours to another part of the town, we were gratified to find the conjecture verified, by the actual discovery of a mass of thirteen pounds weight, which had fallen half a mile to the north-east of Mr. Prince's. Having fallen in a ploughed field, without coming into contact with a rock, it was broken into two principal pieces, one of which, possessing all the characters of the stone in a remarkable degree, we purchased; for it had now become an article of sale.—It was urged that it had pleased heaven to rain down this treasure upon them, and they would bring their thunderbolts to the best markets they could. This was, it must be con-

fessed, a wiser mode of managing the business than that which had been adopted by some others, at an earlier period of these discoveries. Strongly impressed with the idea that these stones contained gold and silver, they subjected them to all the tortures of ancient alchemy; and the goldsmith's crucible, the forge, and the blacksmith's anvil, were employed in vain to elicit riches which existed only in the imagination.

Two miles south-east from Mr. Prince's, at the foot of Tashowa hill, a fifth mass fell. Its fall was distinctly heard by Mr. Ephraim Porter and his family, who live within forty rods of the place, and in full view. They saw a smoke rise from the spot, as they did also from the hill, where they are positive that another stone struck, as they heard it distinctly. At the time of the fall, having never heard of any such thing, they supposed that lightning had struck the ground; but after three or four days, hearing of the stones which had been found in their vicinity, they were induced to search, and the result was the discovery of a mass of stone in the road, at the place where they supposed the lightning had struck. It penetrated the ground to the depth of two feet in the deepest place; the hole was about twenty inches in diameter, and its margin was coloured blue from the powder of the stone struck off in its fall.

It was broken into fragments of moderate size, and from the best calculations might have weighed twenty or twenty-five pounds.

The hole exhibited marks of much violence, the turf being very much torn, and thrown about to some distance.

It is probable that the four stones last described were all projected at the second explosion, and should one be discovered on the neighbouring hill, we must, without doubt, refer it to the same avulsion.

3. Last of all, we hasten to what appears to have been the catastrophe of this wonderful phenomenon.

A mass of stone far exceeding the united weight of all which we have hitherto described, fell in a field belonging to Mr. Elijah Seeley, and within thirty rods of his house.

A circumstance attended the fall of this which seems to have been peculiar. Mr. Elihu Staples, a man of integrity, lives on the hill at the bottom of which this body fell, and witnessed the first appearance, progress and explosion of the meteor. After the last explosion, a rending noise like that of a whirlwind passed along to the east of his house, and

immediately over his orchard, which is on the declivity of the hill. At the same instant a streak of light passed over the orchard in a large curve, and seemed to pierce the ground. A shock was felt, and a report heard, like that of a heavy body falling to the earth; but no conception being entertained of the real cause, (for no one in this vicinity with whom we conversed appeared to have ever heard of the fall of stones from the skies) it was supposed that lightning had struck the ground. Three or four hours after the event Mr. Seeley went into his field to look after his cattle. He found that some of them had leaped into the adjoining enclosure, and all exhibited strong indications of terror. Passing on, he was struck with surprise at seeing a spot of ground which he knew to have been recently turfed over, all torn up, and the earth looking fresh, as if from recent violence. Coming to the place, he found a great mass of fragments of a strange looking stone, and immediately called for his wife, who was second on the ground.

Here were exhibited the most striking proofs of violent collision—A ridge of micaceous schistus lying nearly even with the ground, and somewhat inclining like the hill, to the south-east, was shivered to pieces, to a certain extent, by the impulse of the stone, which thus received a still more oblique direction, and forced itself into the earth to the depth of three feet, tearing a hole of five feet in length and four and an half feet in breadth, and throwing large masses of turf and fragments of stone and earth to the distance of fifty and one hundred feet. Had there been no meteor, no explosions, and no witnesses of the light and shock, it would have been impossible for any person contemplating the scene to doubt that a large and heavy body had really fallen from the skies with tremendous momentum.

This stone was all in fragments, none of which exceeded the size of a man's fist, and was rapidly dispersed by numerous visitors who carried it away at pleasure. Indeed, we found it very difficult to obtain a sufficient supply of specimens of the various stones; an object which was at length accomplished principally by importunity and purchase.—From the best information which we could obtain of the quantity of fragments of this last stone, compared with its specific gravity, we concluded that its weight could not have fallen much short of two hundred pounds. All the stones, when first found, were friable, being easily broken between the fingers; this was especially the case where they had been

buried in the moist earth, but by exposure to the air, they gradually hardened. Such were the circumstances attending the fall of these singular masses. We have named living witnesses; the list of these may be augmented, but we consider the proof as sufficient to satisfy any rational mind. Farther confirmation will be derived from the mineralogical description and chemical examination of these stones.

The specimens obtained from all the different places are perfectly similar. The most careless observer would instantly pronounce them portions of a common mass, and different from any of the stones commonly seen on this globe.

Of their form nothing very certain can be said; because only comparatively small fragments of the great body of the meteor have been obtained. Few of the specimens weigh one pound—most of them less than half a pound, and from that to the fraction of an ounce. Mr. Bronson's piece is the largest with which we are acquainted; we possess the next, which weighs six pounds, and is very perfect in its characteristic marks, and we have a good collection of smaller specimens, many of which are very instructive. They possess every irregular variety of form which might be supposed to arise from accidental fracture with violent force. On many of them, however, and chiefly on the large specimens, may be distinctly perceived portions of the external part of the meteor.

It is every where covered with a thin black crust, destitute of splendour, and bounded by portions of the large irregular curve which seems to have enclosed the meteoric mass. This curve is far from being uniform. It is sometimes depressed with concavities, such as might be produced by pressing a soft and yielding substance. The surface of the crust feels harsh like the prepared fish skin or shagreen. It gives sparks with the steel. There are certain portions of the stones covered with the black crust, which appear not to have formed a part of the outside of the meteor, but to have received this coating in the interior parts, in consequence of fissures or cracks, produced probably by the intense heat to which the body seems to have been subjected. The specific gravity of the stone is 3. 6, water being 1. The colour of the mass of the stone is mainly a dark ash, or more properly a leaden colour. It is interspersed with distinct masses, from the size of a pin's head to the diameter of one or two inches, which are almost white, resembling, in many instances, the crystals of feldtspar in some varieties of gra-

nite, and in that species of porphyry known by the name of *verd antique.*

The texture of the stone is granular and coarse, resembling some pieces of grit stone. It cannot be broken by the fingers, but gives a rough and irregular fracture with the hammer.

On inspecting the mass, four distinct kinds of matter may be perceived by the eye.

1. The stone is thickly interspersed with black globular masses, most of them spherical, but some are oblong and irregular. The largest are of the size of a pigeon shot, but generally they are much smaller. They can be detached with any pointed iron instrument, and leave a concavity in the stone. They are not attractable by the magnet, and can be broken with the hammer.

2. Masses of yellow pyrites may be observed. Some of them are of a brilliant golden colour, and are readily distinguished with the eye.

3. The whole stone is thickly interspersed with metallic points, many of them evident to the eye, and they appear numerous and distinct with a lens. Their colour is whitish, and was mistaken by the discoverers of the stone for silver. They appear to be mainly malleable iron alloyed with nickel.

4. The lead-coloured mass which cements these things together, has been described already, and constitutes by far the greater part of the stone. After being wet and exposed to the air, the stone becomes covered with numerous reddish spots, which do not appear in a fresh fracture, and arise manifestly from the rusting of the iron.

Finally, the stone has been analyzed in the laboratory of this college, according to the excellent instructions of Howard, Vauquelin and Fourcroy. The analysis was hasty, and intended only for the purpose of general information. The exact proportions, and the steps of the analysis, are reserved for more leisure, and may be given to the philosophical world through another medium. It is sufficient for the general reader to be informed that the stone appears to consist of the following ingredients:—

Silex, *Iron*, *Magnesia*, *Nickel*, *Sulphur.*

The two first constitute by far the greater part of the stone—the third is in considerable proportion, but much less than the others—the fourth is probably still less, and the sulphur exists in a small but indeterminate quantity.

Most of the iron is in a perfectly metallic state; the whole

stone attracts the magnet, and this instrument takes up a large proportion of it when pulverized. Portions of metallic iron may be separated so large that they can be readily extended under the hammer. Some of the iron is in combination with sulphur in the pyrites, and probably most of the iron is alloyed by nickel.

It remains to be observed that this account of the appearance of the stone accords very exactly with the descriptions, now become considerably numerous, of similar bodies which have fallen in other countries, at various periods; and with specimens which one of us has inspected, of stones that have fallen in India, France and Scotland. The chemical analysis also proves that their composition is the same; and it is well known to mineralogists and chemists, that no such stones have been found among the productions of this globe. These considerations, together with the facts that are immediately to be mentioned, must, in connection with the testimony, place the credibility of the facts asserted to have recently occurred in Weston, beyond all controversy.

The falling of stones from the clouds is an event which has frequently happened in Europe, in Asia, and in South-America. The accounts of such phenomena were for a long time rejected by philosophers, as the offspring of ignorance and superstition. Several facts of this kind, however, within a few years, have been proved by evidence so unexceptionable, as to overcome the most obstinate incredulity. It is now admitted not only that such phenomena have existed in modern times, but that the accounts of similar events in former ages are in a high degree probable. As this is the first time that stones are known to have fallen in this part of America, it may not be uninteresting to those who have paid little attention to this subject, or who still hesitate to admit that such things have happened, to see a statement of several similar events in other countries, and some of the evidence by which they are supported.

In 1492, on the 7th of November, at Ensisheim, in Upper Alsace, a stone fell from the atmosphere, which weighed 260 pounds. Contemporary writers agree in stating, that on this day, between eleven and twelve o'clock in the morning, a loud explosion was heard at Ensisheim, and that this stone was soon after seen to fall in a field, at no great distance from the town. This stone, till within a few years, was preserved in the parish church of Ensisheim.

In 1762, two stones fell near Verona, one of which

weighed 200 and the other 300 pounds. Three or four hundred persons were witnesses of the event.

In 1790, on the 24th of July, a shower of stones fell near Agen, in Guienne. About nine or ten o'clock at night a meteor was seen moving through the atmosphere with very great velocity. A loud explosion was soon heard, which was followed, after a short interval, by a shower of stones over a considerable extent of country.

In April, 1802, the same thing happened at L'Aigle. Biot, a member of the French National Institute, who visited the place to ascertain the fact, writes to this effect. Persons of all professions, manners and opinions, ecclesiastics, soldiers, and labourers, men, women, and children, agree in referring the event to the same day, the same hour, and the same minute. They say they saw the stones descend along the roofs of the houses, break the branches of the trees, and rebound after they fell upon the pavement. They say they saw the earth smoke around the largest of them, and that the stones were still hot after they had taken them in their hands. The mineralogical collections formed on the spot, with the greatest care, contained nothing of the kind. On a sudden, and only since the time of the meteor, these stones have been found, and within a certain extent.

Within fifteen years past, the falling of similar bodies, under similar circumstances, has happened in Portugal, Bohemia, France, Great-Britain, India, and South-America.

To account for the existence of these stones, various theories have been formed by philosophers. Some have supposed them to be only common stones struck with lightning, and partly melted. But this theory has now no advocates. A less fanciful hypothesis is, that they are masses of matter thrown from volcanoes. But to this there are serious objections. No such bodies are found near the craters of volcanoes, or are known to be projected from them. And in many instances, these bodies have fallen several hundred, and even several thousand miles from any known volcano. Mr. Edward King has varied this theory, and supposes that these substances are thrown from volcanoes not in solid masses, but in the state of ashes or dust. He supposes that these ashes descending in a cloud, become condensed, take fire, and produce numerous explosions. According to him, the pyritical, metallic, and argillaceous particles melt, are suddenly crystallized and consolidated, and fall in masses to

the ground. This explanation evidently involves as great difficulties as those which it is intended to obviate. Some philosophers have supposed that these stones are thrown from terrestrial comets. Not to mention any other objection to this hypothesis, it will by no means account for such a phenomenon as appeared at Sienna, in 1794, when stones descended, not from a moving meteor, but from a luminous cloud. Other philosophers, ascribing to these stones an origin still more extraordinary, suppose them to be projected from the moon. Admitting that bodies can be projected beyond the sphere of the moon's attraction, they must move round the earth in one of the conic sections; and all the difficulties attending the preceding hypotheses, embarrass this. The subject must be acknowledged to be involved in much obscurity, and the phenomenon, till we are possessed of more facts and better observations, must be considered inexplicable. [*Connecticut Herald.*

Gibbs's grand Collection of Minerals.

One of the most zealous cultivators of mineralogy in the United States, is Col. G. Gibbs, of Rhode-Island. And his taste and his fortune have concurred in making him the proprietor of the most extensive and valuable assortment of minerals that probably exists in America.

This rich collection consists of the cabinets possessed by the late Mons. GIGOT D'ORCY, of Paris, and the Count GREGOIRE DE RAZAMOWSKY, a Russian nobleman, long resident in Switzerland. To which the present proprietor has added a number, either gathered by himself on the spot, or purchased in different parts of Europe.

The collection of Mr. *D'Orcy* is particularly rich in the productions of the French mines: Such as the phosphates, carbonates, and molybdates of lead; the iron ores of Bangory, Framont, and the Isle of Elba; the silver of St. Maria and d'Allemont; the mercury of Deuxponts; a great variety of marbles, calcedonies and agates, quartz, calcareous, and other spars from France and different parts of Europe.

The collection of the Count *Razamowsky* consists chiefly of the minerals of the Russian empire. It is particularly rich in gold and copper ores, chromates of lead, the native iron of Pallas, Beryls, Jaspers, &c. The Russian specimens alone are about six thousand in number. The remainder are chiefly German and Swiss.

To these Mr. Gibbs has added all the newly discovered minerals, a complete collection of English, Swiss, and Italian specimens, including the ancient marbles, porphyries, &c. the muriates and carbonates of copper from Chili; the spinel and oriental rubies, of which this is the third complete collection existing. Also, a large geological collection. The whole consists of about twenty thousand specimens. A small part of this collection was opened to amateurs at Rhode-Island, the last summer, and the next, if circumstances permit, the remainder will be exposed.

In giving this account of a collection, so much wished for in the United States, it may be justly acknowledged, that it is principally by the assistance of the sçavans of France, that it was rendered so complete; and that if it should prove useful to our country, the proprietor will share the pleasure with DE L'AUMONT, DAUBUISSON, STRUVO and BOURNON.

Analysis of Balltown Waters; communicated by Dr. D. Hosack to Dr. Miller.

Presuming that an accurate knowledge of the composition of the Balltown waters may be of public benefit, and lead to a more general use of this valuable article of the Materia Medica, I request the favour of you to give place in your Repository to the following analysis, which has been made in France by one of her most celebrated chemists.

It may be proper to remark, that the water was carefully sealed at the Spring, and conveyed by a gentleman who had been in the habit of drinking it.—He observes—"On my arrival at Paris, I drank two bottles of the water, and found no difference in the taste or effect from that experienced last year at Balltown, from which I conclude that it suffers no alteration from transportation."

Analysis of a bottle of Balltown water, containing twenty-five ounces:

1. Carbonic acid gas, or fixed air, three times its bulk.
2. Muriate of soda, or marine salt, thirty-one grains.
3. Carbonate of lime, supersaturated, twenty-two grains.
4. Muriate of magnesia, twelve and an half grains.
5. Muriate of lime, five grains.
6. Carbonate of iron, four grains.

The chemist proceeds to add—"No mineral water of our continent is so rich in saline substances of this sort. That of Vichy, which is in great repute, does not contain more than the *tenth of a grain* of the carbonate of iron to a bottle;

while that of Balltown contains *four grains:* And it is chiefly to the iron that these waters owe their tonic and deobstruent qualities. Another advantage of the American mineral water is, that by its gentle cathartic operation, it is no less calculated to evacuate bile, than to give tone to the vascular system. On these accounts it is a valuable remedy in a great variety of diseases of debility, and appears to be formed by nature in the best possible proportions to give it efficacy." He adds, " I have no doubt, when known, it must become an important object of commerce."

Two inferences worthy of notice are to be deduced from the above analysis of this powerful chalybeate; that in some diseases, as in consumption of the lungs, it has hitherto been improperly employed; but that there are also many others, for which it has not been generally used, and in which it promises to be of great value.

Medical College of Baltimore.

The Legislature of Maryland, on the 18th December, 1807, passed " An Act for Founding a Medical College in the City or Precincts of Baltimore, for the Instruction of Students in the different Branches of Medicine." This institution is established upon a liberal plan, and incorporated in perpetuity. It consists of a board called the *Regents of the College of Medicine of Maryland*, formed from the existing board of medical examiners for the commonwealth and the president and professors appointed by the act. It may hold property to a value not exceeding thirty thousand dollars, exclusive of a lot and buildings. The regents may appoint professors and lecturers, who shall form one learned body, under the name of the *Medical Faculty;* with power to choose their dean, and do what is necessary for conveying instruction and supporting discipline.

The *regents* must meet at least once a year. The faculty shall hold at least one term annually, to begin on the first Monday in November, and continue not less than four nor more than six months. At convenient times, commencements may be held, and degrees in surgery and medicine be granted, after due examination and other proofs of sufficiency. Each student must have attended each course of lectures at least once, and frequented the classes of the College for two terms; and he must also have been privately and publicly examined, and have printed and defended a thesis, before he can be admitted to the honours of the College.

The Professors appointed by the act, are,

John B. Davidge, M. D. and James Cocke, M. D. joint Professors of Anatomy, Surgery, and Physiology.

George Brown, M. D. Professor of the Practice and Theory of Medicine.

John Shaw, M. D. Professor of Chemistry.

Thomas E. Bond, M. D. Professor of Materia Medica.

William Donaldson, M. D. Professor of the Institutes of Medicine.

The *Medical and Chirurgical Faculty of Maryland* are appointed the Patrons and Visitors of the College; and their President is declared to be the Chancellor.

Election of Members in the Medical Society of New-York.

We announce with great pleasure the unanimous election of Dr. JOHN C. OSBORN, a physician of distinguished learning and eminence from Newbern, in North-Carolina, formerly President of the Medical Society of that State, and lately settled in this city. On the same occasion, Dr. Woodward and Dr. Ball were also unanimously elected.

New Publications on Midwifery.

Dr. SAMUEL BARD, who has been long known as an able and learned practitioner in this city, and who has for some years past retired from the active duties of his profession, has now in the press of Messrs. Collins and Perkins, an interesting work, entitled, "*A Compendium of the Theory and Practice of Midwifery, containing practical Instructions for the Management of Women during Pregnancy, in Labour and in Child-bed; calculated to correct the Errors and improve the Practice of Midwives, as well as to serve as an Introduction to the Study of this Art, for Students and young Practitioners.*"

We are gratified to find that this experienced and venerable physician, after devoting such a number of years to the service of the public, carries into retirement a persevering zeal for the advancement of professional knowledge and the instruction of all such as engage in this department of practice. Plutarch observes that the life of a vestal virgin was divided into three portions; in the first of which she learned the duties of her profession; in the second she practised them; and in the third she taught them to others. This, says the illustrious HEBERDEN, is no bad model for the life of a

physician. It gives us pleasure to recognize, in the design of the work we here announce, an instance of this kind of dignified and disinterested usefulness.

Dr. W. P. Dewees, who has been many years known to the public as an eminent teacher of midwifery at Philadelphia, and whose publications on that subject have gained a high degree of approbation, has lately presented to the public "*An Abridgment of Mr. Heath's Translation of* BAUDELOCQUE*'s Midwifery.*" This abridgment is also accompanied by notes which add greatly to the value of the work. The character of M. Baudelocque, as a writer on Midwifery, is too well known to the public, and too firmly established, to need commendation. A more particular account of this work will be given hereafter.

Clinical Lectures in the College of Physicians and Surgeons.

In pursuance of an arrangement formed by the Governors of the New-York Hospital, the Professor of the Practice of Physic in the College of Physicians and Surgeons is authorized to select from a moiety of the medical patients in that charity, such as are proper for the purpose of clinical lectures. This course was accordingly begun at the usual time, and will be continued till the other courses are finished. In addition to the advantages of clinical practice in the New-York Hospital, the students of the new Institution are now enabled to avail themselves of the eminent talents and learning of Dr. M'NEVEN, who, as one of the physicians of the Alms-house, is very assiduously engaged in delivering clinical lectures on the cases which occur in that asylum for the poor. And in order to render this department of instruction still more interesting, he adds to the other parts of his course a series of lectures on the *Venereal Disease.*

FOREIGN.

Report of the Royal College of Physicians of London on Vaccination. With an Appendix, containing the Opinions of the Royal Colleges of Physicians of Edinburgh and Dublin; and of the Royal Colleges of Surgeons of London, of Dublin, and of Edinburgh.

THE Royal College of Physicians of London having received his Majesty's commands, in compliance with an address from the House of Commons, " to inquire into the state of vaccine inoculation in the United Kingdom, to report their opinion and observations upon that practice, upon the evidence which has been adduced in its support, and upon the causes which have hitherto retarded its general adoption;"—have applied themselves diligently to the business referred to them.

Deeply impressed with the importance of an inquiry which equally involves the lives of individuals, and the public prosperity, they have made every exertion to investigate the subject fully and impartially. In aid of the knowledge and experience of the members of their own body, they have applied separately to each of the licentiates of the College; they have corresponded with the Colleges of Physicians of Dublin and Edinburgh; with the Colleges of Surgeons of London, Edinburgh, and Dublin; they have called upon the societies established for vaccination, for an account of their practice, to what extent it has been carried on, and what has been the result of their experience; and they have, by public notice, invited individuals to contribute whatever information they had severally collected. They have, in consequence, been furnished with a mass of evidence, communicated with the greatest readiness and candour, which enables them to speak with confidence upon all the principal points referred to them.

1. During eight years which have elapsed since Dr. Jenner made his discovery public, the progress of vaccination has been rapid, not only in all parts of the United Kingdom, but in every quarter of the civilized world. In the British Islands some hundred thousands have been vaccinated; in our possessions in the East-Indies upwards of eight hundred thousand; and among the nations of Europe

the practice has become general. Professional men have submitted it to the fairest trials, and the public have, for the most part, received it without prejudice. A few, indeed, have stood forth the adversaries of vaccination, on the same grounds as their predecessors who opposed the inoculation for the small-pox, falsely led by hypothetical reasoning in the investigation of a subject which must be supported, or rejected, upon facts and observation only. With these few exceptions, the testimony in favour of vaccination has been most strong and satisfactory, and the practice of it, though it has received a check in some quarters, appears still to be upon the increase in most parts of the United Kingdom.

2. The College of Physicians, in giving their observations and opinions on the practice of vaccination, think it right to premise, that they advance nothing but what is supported by the multiplied and unequivocal evidence which has been brought before them; and they have not considered any facts as proved but what have been stated from actual observation.

Vaccination appears to be, in general, perfectly safe; the instances to the contrary being extremely rare. The disease excited by it is slight, and seldom prevents those under it from following their ordinary occupations. It has been communicated with safety to pregnant women, to children during dentition, and in their earliest infancy; in all which respects it possesses material advantages over inoculation for the small-pox; which, though productive of a disease generally mild, yet sometimes occasions alarming symptoms, and is in a few cases fatal.

The security derived from vaccination against the small-pox, if not absolutely perfect, is as nearly so as can perhaps be expected from any human discovery; for amongst several hundred thousand cases, with the results of which the College have been made acquainted, the number of alleged failures has been surprizingly small, so much so, as to form certainly no reasonable objection to the general adoption of vaccination: for it appears that there are not nearly so many failures, in a given number of vaccinated persons, as there are deaths in an equal number of persons inoculated for the small-pox. Nothing can more clearly demonstrate the superiority of vaccination over the inoculation of the small-pox, than this consideration; and it is a most important fact, which has been confirmed in the course

of this inquiry, that in almost every case, where the small-pox has succeeded vaccination, whether by inoculation or by casual infection, the disease has varied much from its ordinary course; it has neither been the same in the violence, nor in the duration of its symptoms, but has, with very few exceptions, been remarkably mild, as if the small-pox had been deprived, by the previous vaccine disease, of all its usual malignity.

The testimonies before the College of Physicians are very decided in declaring, that vaccination does less mischief to the constitution, and less frequently gives rise to other diseases, than the small-pox, either natural or inoculated.

The College feel themselves called upon to state this strongly, because it has been objected to vaccination, that it produces new, unheard-of, and monstrous diseases. Of such assertions no proofs have been produced, and, after diligent inquiry, the College believe them to have been either the inventions of designing, or the mistakes of ignorant men. In these respects then, in its mildness, its safety, and its consequences, the individual may look for the peculiar advantages of vaccination. The benefits which flow from it to society are infinitely more considerable; it spreads no infection, and can be communicated only by inoculation. It is from a consideration of the pernicious effects of the small-pox, that the real value of vaccination is to be estimated. The natural small-pox has been supposed to destroy a sixth part of all whom it attacks; and that even by inoculation, where that has been general in parishes and towns, about one in three hundred has usually died. It is not sufficiently known, or not adverted to, that nearly one-tenth, some years more than one-tenth of the whole mortality in London, is occasioned by the small-pox; and however beneficial the inoculation of the small-pox may have been to individuals, it appears to have kept up a constant source of contagion, which has been the means of increasing the number of deaths by what is called the natural disease. It cannot be doubted that this mischief has been extended by the inconsiderate manner in which great numbers of persons, even since the introduction of vaccination, are still every year inoculated with the small-pox, and afterwards required to attend two or three times a week at the places of inoculation, through every stage of their illness.

From this, then, the public are to expect the great and

uncontroverted superiority of vaccination, that it communicates no casual infection, and, while it is a protection to the individual, it is not prejudicial to the public.

3. The College of Physicians, in reporting their observations and opinions on the evidence adduced in support of vaccination, feel themselves authorized to state, that a body of evidence so large, so temperate, and so consistent, was perhaps never before collected upon any medical question. A discovery so novel, and to which there was nothing analogous known in nature, though resting on the experimental observations of the inventor, was at first received with diffidence: it was not, however, difficult for others to repeat his experiments, by which the truth of his observations was confirmed, and the doubts of the cautious were gradually dispelled by extensive experience. At the commencement of the practice, almost all that were vaccinated were afterwards submitted to the inoculation of the small-pox; many underwent this operation a second, and even a third time, and the uniform success of these trials quickly bred confidence in the new discovery. But the evidence of the security derived from vaccination against the small-pox does not rest alone upon those who afterwards underwent variolous inoculation, although amounting to many thousands; for it appears, from numerous observations communicated to the College, that those who have been vaccinated are equally secure against the contagion of epidemic small-pox. Towns, indeed, and districts of the country, in which vaccination had been general, have afterwards had the small-pox prevalent on all sides of them without suffering from the contagion. There are also in the evidence a few examples of epidemic small-pox having been subdued by a general vaccination. It will not, therefore, appear extraordinary, that many who have communicated their observations should state, that though at first they thought unfavourably of the practice, experience had now removed all their doubts.

It has been already mentioned, that the evidence is not universally favourable, although it is in truth nearly so; for there are a few who entertain sentiments differing widely from those of the great majority of their brethren. The College, therefore, deemed it their duty, in a particular manner, to inquire upon what grounds and evidence the opposers of vaccination rested their opinions. From personal examination, as well as from their writings, they en-

deavoured to learn the full extent and weight of their objections. They found them without experience in vaccination, supporting their opinions by hearsay information, and hypothetical reasoning; and, upon investigating the facts which they advanced, they found them to be either misapprehended or misrepresented; or that they fell under the description of cases of imperfect small-pox, before noticed, and which the College have endeavoured fairly to appreciate.

The practice of vaccination is but of eight years standing, and its promoters, as well as opponents, must keep in mind, that a period so short is too limited to ascertain every point, or to bring the art to that perfection of which it may be capable. The truth of this will readily be admitted by those acquainted with the history of inoculation for the small-pox. Vaccination is now, however, well understood, and its character accurately described. Some deviations from the usual course have occasionally occurred, which the author of the practice has called spurious cow-pox, by which the public have been misled, as if there were a true and a false cow-pox; but it appears that nothing more was meant, than to express irregularity or difference from that common form and progress of the vaccine pustule from which its efficacy is inferred. Those who perform vaccination ought therefore to be well instructed, and should have watched with the greatest care the regular progress of the pustule, and learnt the most proper time for taking the matter. There is little doubt that some of the failures are to be imputed to the inexperience of the early vaccinators; and it is not unreasonable to expect, that farther observation will yet suggest many improvements that will reduce the number of anomalous cases, and furnish the means of determining, with greater precision, when the vaccine disease has been effectually received.

Though the College of Physicians have confined themselves in estimating the evidence to such facts as have occurred in their own country, because the accuracy of them could best be ascertained, they cannot be insensible to the confirmation these receive from the reports of the successful introduction of vaccination, not only into every part of Europe, but throughout the vast continents of Asia and America.

4. Several causes have had a partial operation in retarding the general adoption of vaccination; some writers have

greatly undervalued the security it affords, while others have considered it to be of a temporary nature only; but if any reliance is to be placed on the statements which have been laid before the College, its power of protecting the human body from the small-pox, though not perfect indeed, is abundantly sufficient to recommend it to the prudent and dispassionate, especially as the small-pox, in the few instances where it has subsequently occurred, has been generally mild and transient. The opinion that vaccination affords but a temporary security, is supported by no analogy in nature, nor by the facts which have hitherto occurred. Although the experience of vaccine inoculation be only of a few years, yet the same disease, contracted by the milkers of cows, in some districts, has been long enough known to ascertain that, in them at least, the unsusceptibility of the small-pox contagion does not wear out by time. Another cause, is the charge against vaccination of producing various new diseases of frightful and monstrous appearance.

Representations of some of these have been exhibited in prints in a way to alarm the feelings of parents, and to infuse dread and apprehension into the minds of the uninformed. Publications with such representations have been widely circulated, and though they originate either in gross ignorance, or wilful misrepresentation, yet have they lessened the confidence of many, particularly of the lower classes, in vaccination; no permanent effects, however, in retarding the progress of vaccination, need be apprehended from such causes; for, as soon as the public shall view them coolly and without surprize, they will excite contempt, and not fear.

Though the College of Physicians are of opinion that the progress of vaccination has been retarded in a few places by the above causes, yet they conceive that its general adoption has been prevented by causes far more powerful, and of a nature wholly different. The lower orders of society can hardly be induced to adopt precautions against evils which may be at a distance; nor can it be expected from them, if these precautions are attended with expense. Unless, therefore, from the immediate dread of epidemic small-pox, neither vaccination nor inoculation appear at any time to have been general; and when the cause of terror has passed by, the public have relapsed again into a state of indifference and apathy, and the salutary practice has come to a stand. It is not easy to suggest a remedy for an evil so deeply imprinted in human nature. To inform and instruct the public

mind may do much, and it will probably be found that the progress of vaccination in different parts of the United Kingdom will be in proportion to that instruction. Were encouragement given to vaccination, by offering it to the poorer classes without expense, there is little doubt but it would in time supersede the inoculation for the small-pox, and thereby various sources of variolous infection would be cut off; but till vaccination becomes general, it will be impossible to prevent the constant recurrence of the natural small-pox by means of those who are inoculated, except it should appear proper to the legislature to adopt, in its wisdom, some measure by which those who still, from terror or prejudice, prefer the small-pox to the vaccine disease, may, in thus consulting the gratification of their own feelings, be prevented from doing mischief to their neighbours.

From the whole of the above considerations, the College of Physicians feel it their duty strongly to recommend the practice of vaccination. They have been led to this conclusion by no preconceived opinion, but by the most unbiassed judgment, formed from an irresistible weight of evidence which has been laid before them. For when the number, the respectability, the disinterestedness, and the extensive experience of its advocates, is compared with the feeble and imperfect testimonies of its few opposers; and when it is considered that many, who were once adverse to vaccination, have been convinced by further trials, and are now to be ranked among its warmest supporters, the truth seems to be established as firmly as the nature of such a question admits; so that the College of Physicians conceive that the public may reasonably look forward, with some degree of hope, to the time when all opposition shall cease, and the general concurrence of mankind shall at length be able to put an end to the ravages at least, if not to the existence, of the small-pox.

LUCAS PEPYS, *President.*
JA. HERVEY, *Register.*

Royal College of Physicians, 10*th April*, 1807.

APPENDIX.

No. I.

To the Royal College of Physicians of London.

GENTLEMEN,

I am ordered by the King and Queen's College of Physicians in Ireland, to thank the Royal College of Physicians of London for the communication they have had the honour to receive from them, of certain propositions relative to vaccination, whereon his Majesty has been pleased to direct an inquiry to be instituted, and in the prosecution of which the co-operation of the College in Ireland is requested.

And I am directed to acquaint you, that the said College, having referred the investigation of these propositions to a committee, have received from them a report, of which the enclosed is a copy; and that they desire the same may be considered as containing their opinion upon the subject.

I have the honour to be, Gentlemen,
Your most obedient humble servant,
HUGH FERGUSON, *Register.*

By order of the King and Queen's College
of Physicians in Ireland.
Dublin, 11*th Nov.* 1806.

"The practice of vaccination was introduced into this city about the beginning of the year 1801, and appears to have made inconsiderable progress at first. A variety of causes operated to retard its general adoption, amongst which the novelty of the practice, and the extraordinary effects attributed to vaccination, would naturally take the lead.

"Variolous inoculation had been long, almost exclusively, in the hands of a particular branch of the profession, whose prejudices and interests were strongly opposed to the new practice; and by their being the usual medical attendants in families, and especially employed in the diseases of children, their opinions had greater effect upon the minds of parents. The small-pox is rendered a much less formidable disease in this country by the frequency of inoculation for it, than it is in other parts of his Majesty's dominions, where prejudices against inoculation have prevailed; hence parents, not unnaturally, objected to the introduction of a new disease, rather than not recur to that, with the mildness and safety of which they were well acquainted.

"In the beginning of the year 1804, the cow-pox institution was established under the patronage of the Earl of Hardwicke, and it is from this period that we may date

the general introduction of vaccination into this city, and throughout all parts of Ireland.

"The success of the institution, in forwarding the new practice, is to be attributed, in a great measure, to the respectability of the gentlemen who superintend it, and to the diligence, zeal, and attention of Dr. Labatt, their secretary and inoculator. In order to show the progress which has been made in extending vaccination, your committee refer to the reports of the cow-pox institution for the last two years, and to extracts from their register for the present year.

	Patients inoculated.	Packets issued to Practitioners in general.	Packets to Army Surgeons.
1804.	578	776	236
1805.	1,032	1,124	178
1806.	1,356	1,340	220
Total	2,966	3,240	634

"In the above statement, the numbers are averaged to the end of the present year, on the supposition of patients resorting to the institution as usual. The correspondence of the institution appears to be very general throughout every part of Ireland; and by the accounts received, as well from medical practitioners as others, the success of vaccination seems to be uniform and effectual. At the present period, in the opinion of your committee, there are few individuals in any branch of the profession, who oppose the practice of vaccination in this part of his Majesty's dominions.

"It is the opinion of your committee, that the practice of cow-pox inoculation is safe, and that it fully answers all the purposes that have been intended by its introduction. At the same time, your committee is willing to allow that doubtful cases have been reported to them as having occurred, of persons suffering from small-pox, who had been previously vaccinated. Upon minute investigation, however, it has been found that these supposed instances originated generally in error, misrepresentation, or the difficulty of discriminating between small-pox and other eruptions, no case having come to the knowledge of your committee, duly authenticated by respectable and competent judges, of genuine small-pox succeeding the regular vaccine disease.

"The practice of vaccination becomes every day more extended; and, when it is considered that the period at which it came into general use in Ireland is to be reckoned

from so late a date, your committee is of opinion, that it has made already as rapid a progress as could be expected.

(Signed) "JAMES CLEGHORN, DANIEL MILLS, HUGH FERGUSON."

No. II.

Physicians' Hall, Edinburgh, 26th Nov. 1806.

GENTLEMEN,

The Royal College of Physicians of Edinburgh have but little opportunity themselves of making observations on vaccination, as that practice is entirely conducted by surgeon apothecaries, and other medical practitioners not of their college, and as the effects produced by it are so inconsiderable and slight, that the aid of a physician is never required.

The college know that in Edinburgh it is universally approved of by the profession, and by the higher and middle ranks of the community, and that it has been much more generally adopted by the lower orders of the people than ever the inoculation for small-pox was, and they believe the same to obtain all over Scotland.

With regard to any causes which have hitherto prevented its general adoption, they are acquainted with none, except the negligence or ignorance of parents among the common people, or their mistaken ideas of the impropriety or criminality of being accessary to the production of any disease among their children, or the difficulty or impossibility, in some of our country districts, of procuring vaccine matter, or a proper person to inoculate.

The evidence in favour of vaccination appeared to the Royal College of Physicians of Edinburgh so strong and decisive, that in May last, they spontaneously and unanimously elected Dr. Jenner an Honorary Fellow of their College;—a mark of distinction which they very rarely confer, and which they confine almost exclusively to foreign physicians of the first eminence.

They did this with a view to publish their opinion with regard to vaccination, and in testimony of their conviction of the immense benefits which have been, and which will in future be derived to the world, from inoculation for the cow-pox, and as a mark of their sense of Dr. Jenner's very great merits and ability in introducing and promoting this invaluable practice. I have the honour to be,

Gentlemen, your most obedient humble servant,

TH. SPENS, C. R. M. Ed. Pr.

To the Royal College of Physicians of London.

No. III.

At a Special Court of Assistants of the Royal College of Surgeons, convened by order of the Master, and holden at the College, on Tuesday, the 17th Day of March, 1807;

Mr. Governor LUCAS in the Chair:

Mr. LONG, as chairman of the board of curators, reported, that the board are now ready to deliver their report on the subject of vaccination.

It was then moved, seconded, and resolved, that a report from the board of curators, on the subject of vaccination, which was referred to their consideration by the court of assistants, on the 21st day of November last, be now received.

Mr. Long then delivered to Mr. Governor Lucas (presiding in the absence of the Master) a report from the board of curators.

It was then moved, seconded, and resolved, that the report, delivered by Mr. Long, be now read; and it was read accordingly, and is as follows:

To the Court of Assistants of the Royal College of Surgeons in London.

The Report of the Board of Curators, on the Subject of Vaccination, referred to them by the Court, on the 21st Day of Nov. 1806; *made to the Court on the 17th of March*, 1807.

The Court of Assistants having received a letter from the Royal College of Physicians of London, addressed to this College, stating, that his Majesty had been graciously pleased, in compliance with an address from the honourable House of Commons, to direct his Royal College of Physicians of London to inquire into the state of vaccination in the United Kingdom, to report their observations and opinion upon that practice, upon the evidence adduced in its support, and upon the causes which have hitherto retarded its general adoption; that the College were then engaged in the investigation of the several propositions thus referred to them, and requesting this College to co-operate and communicate with them, in order that the report thereupon might be made as complete as possible:

And having, on the 21st day of November last, referred such letter to the consideration of the board of curators, with authority to take such steps respecting the contents thereof as they should judge proper, and report their proceedings thereon, from time to time, to the court:—The board proceeded with all possible dispatch to the consideration of the subject.

The board being of opinion that it would be proper to address circular letters to the members of this College, with a view of collecting evidence, they submitted to the consideration of the court, holden on the 15th day of December last, the drafts of such letter as appeared to them best calculated to answer that end; and the same having been approved by the court, they caused copies thereof to be sent to all the members of the College in the United Kingdom, whose residence could be ascertained, in the following form; *viz.*

" Sir,

" The Royal College of Surgeons being desirous to cooperate with the Royal College of Physicians of London, in obtaining information respecting vaccination, submit to you the following questions, to which the favour of your answer is requested.

" By order of the Court of Assistants,

" OKEY BELFOUR, *Secretary.*"

Lincoln's-Inn Fields, Dec. 15, 1806.

" 1st. How many persons have you vaccinated?

" 2d. Have any of your patients had the small-pox after vaccination? In the case of every such occurrence, at what period was the vaccine matter taken from the vesicle? How was it preserved? How long before it was inserted? What was the appearance of the inflammation? And what the interval between vaccination and the variolous eruption?

" 3d. Have any bad effects occurred in your experience in consequence of vaccination? And if so, what were they?

" 4th. Is the practice of vaccination increasing or decreasing in your neighbourhood? If decreasing, to what cause do you impute it?"

To such letters the board have received 426 answers: and the following are the results of their investigation:

The number of persons, stated in such letters to have been vaccinated, is 164,381.

The number of cases in which small-pox had followed vaccination is 56.

The board think it proper to remark under this head, that, in the enumeration of cases in which small-pox has succeeded vaccination, they have included none but those in which the subject was vaccinated by the surgeon reporting the facts.

The bad consequences which have arisen from vaccination

are, eruptions of the skin in 66 cases, and inflammation of the arm in 24 instances, of which three proved fatal.

Vaccination, in the greater number of counties from which reports have been received, appears to be increasing; it may be proper however to remark, that, in the metropolis, it is on the decrease.

The principal reasons assigned for the decrease are,

Imperfect vaccination,
Instances of small-pox after vaccination,
Supposed bad consequences,
Publications against the practice,
Popular prejudices.

And such report having been considered, it was moved, seconded, and

Resolved, that the report now read be adopted by this court, as the answer of the court to the letter of the Royal College of Physicians of the 23d day of October last, on the subject of vaccination.

Resolved, that a copy of these minutes and resolutions, signed by Mr. Governor Lucas (presiding at this court in the absence of the Master) be transmitted by the secretary to the register of the Royal College of Physicians.

(Signed) WM. LUCAS.

No. IV.

Sir, *Edinburgh, March 3d*, 1807.

I mentioned in my former letter, that I would take the earliest opportunity of laying before the Royal College of Surgeons of Edinburgh, the communication with which the Royal College of Physicians of London had honoured them, on the 23d of October last:

I am now directed by the Royal College to send the following answer on that important subject.

The practice of vaccine inoculation, both in private, and at the vaccine institution established here in 1801, is increasing so rapidly, that for two or three years past, the small-pox has been reckoned rather a rare occurrence, even amongst the lower orders of the inhabitants of this city, unless in some particular quarters about twelve months ago; and, among the higher ranks of the inhabitants, the disease is unknown.

The members of the Royal College of Surgeons have much pleasure in reporting, that, as far as their experience goes, they have no doubt of the permanent security against

the small-pox which is produced by the constitutional affection of the cow-pox; and that such has hitherto been their success in vaccination, as also to gain for it the confidence of the public, insomuch that they have not been required, for some years past, to inoculate any person with small-pox who had not previously undergone the inoculation with the cow-pox.

The members of the Royal College have met with no occurrence in their practice of cow-pox inoculation which could operate in their minds to its disadvantage; and they beg leave particularly to notice, that they have seen no instance of obstinate eruptions, or of new and dangerous diseases, which they could attribute to the introduction among mankind of this mild preventive of small-pox. The Royal College of Surgeons know of no causes which have hitherto retarded the adoption of vaccine inoculation here; on the contrary, the practice has become general within this city; and from many thousand packets of vaccine matter having been sent by the members of the Royal College, and the vaccine institution here, to all parts of the country, the Royal College have reason to believe that the practice has been as generally adopted throughout this part of the United Kingdom, as could have been expected from the distance of some parts of the country from proper medical assistance, and other circumstances of that nature.

I have the honour to be, Sir, your most obedient servant,

WM. FARQUHARSON.

President of the Royal College and Incorporation of Surgeons of Edinburgh.

No. V.

Royal College of Surgeons in Ireland.

SIR, *Dublin, February 4th*, 1807.

I am directed to transmit to you the enclosed report of a committee of the College of Surgeons in Ireland, to whom was referred a letter from the Royal College of Physicians in London, relative to the present state of vaccination in this part of the United Kingdom; and to state, that the College of Surgeons will be highly gratified by more frequent opportunities of corresponding with the English College of Physicians on any subject which may conduce to the advancement of science, and the welfare of the public.

I have the honour to be, Sir,

Your most obedient humble servant,

JAMES HENTHORN, *Sec'ry.*

At a meeting of the Royal College of Surgeons in Ireland, holden at their Theatre, on Tuesday the 13th Day of Jan. 1807.

FRANCIS M'EVOY, Esq. President.

Mr. Johnson reported from the committee, to whom was referred a letter from the College of Physicians, London, relative to the present state of vaccination in the United Kingdom, &c. &c. that they met, and came to the following resolutions:

That it appears to this committee, that inoculation with vaccine infection is now very generally adopted by the surgical practitioners in this part of the United Kingdom, as a preventive of small-pox.

That it appears to this committee, that from the 25th day of March, 1800, to the 25th of November, 1806, 11,504 persons have been inoculated with vaccine infection at the dispensary for infant poor, and 2,831 at the cow-pox institution, making a total of 14,335, exclusive of the number inoculated at hospitals and other places, where no registry is made and preserved.

That it is the opinion of this committee, that the cow-pox has been found to be a mild disease, and rarely attended with danger, or any alarming symptom; and that the few cases of small-pox which have occurred in this country, after supposed vaccination, have been satisfactorily proved to have arisen from accidental circumstances, and cannot be attributed to the want of efficacy in the genuine vaccine infection as a preventive of small-pox.

That it is the opinion of this committee, that the causes which have hitherto retarded the more general adoption of vaccination in Ireland, have, in a great measure, proceeded from the prejudices of the lower classes of the people, and the interest of some irregular practitioners.

To which report the College agreed.

Extract from the minutes.

JAMES HENTHORN, *Sec'ry.*

Literary Intelligence.

There will soon be published in Philadelphia, a new and interesting work, entitled, *The Columbiad. A Poem in ten Books, by* JOEL BARLOW.

This work will be ornamented with twelve engravings, which have been done in England by the most eminent artists, and at great expense. The typographical part, wholly American, is executed in a manner highly creditable to the several artists employed; the paper by *Amies*, the type by *Binny and Ronaldson*, and the printing, with consummate care and taste, by *Fry and Kammerer:* it will be published by *C. and A. Conrad*, in one volume 4to.

A work like this, on a great national subject, must excite a high degree of interest; and we doubt not but in this instance the public expectation will be fully answered; and while it may be cited as a monument of American genius, the publishers flatter themselves that this edition will do equal honour to our arts.